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Class of Business Training

Module 3 (8): The foreign exchange market

Class 8: Forex investments

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INTRODUCTION

This module forms part of the Class of Business Training for Business Class: Forex investments: Class 8

The participant must have completed and passed the following modules first before undertaking this module:

- COB Module 1 (A) - Overview of the financial services sector
- COB Module 2 (I) – Introduction to portfolio selection: Class 3; 4; 6; 7 & 8

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TOPIC 1 INTRODUCTION

LEARNING OUTCOMES

After studying the topic, the learner should be able to-

- Define the foreign exchange market.
- Outline the organisational structure of the market.
- Name the foreign exchange market participants.
- Understand currency as an asset class.

1.1 INTRODUCTION

Forex investment means an investment in a financial product in foreign exchange trading based on price fluctuation in the foreign exchange market but excludes transaction in foreign exchange conducted under Exchange Control laws by a bureau de change.

Therefore, an understanding of the foreign exchange market and currency valuation is needed.

1.2 THE MARKET DEFINED

The Foreign Exchange Market is a global, worldwide, decentralized financial market for trading currencies. Financial centres around the world function as anchors of trading between a wide range of different types of buyers and sellers around the clock, with exception of weekends.

The foreign exchange market determines the relative values of different currencies. The Forex market is considered the largest financial market in the world with daily turnover estimated at 5.3 trillion U.S. Dollars.

The foreign exchange market plays a crucial role in facilitating cross-border trade, investment, and financial transactions.

The foreign exchange market is an important adjunct to the international capital market allowing borrowers to meet their financing requirements in the currency that best meets their needs.

1.3 ORGANISATIONAL STRUCTURE OF THE FOREX MARKET

Most currency exchanges are made via bank deposits. Banks dealing in the foreign exchange market tend to be concentrated in certain key financial cities - London, New York, Tokyo, and Singapore.

The foreign exchange market is highly integrated globally and operates 24 hours a day – when one major market is closed another is open, so trading can take place 24 hours a day moving from one centre to another.

There are three major time zones. The market begins each day at 1 a.m. Greenwich Mean Time (GMT) when Tokyo opens. The Far Eastern time zone holds sway until 9 a.m. GMT when trading in the European time zone begins in centres such as London, Frankfurt, Paris and Zurich. By 2 p.m. GMT trading in the American time zone begins in New York, which does not close until 10 p.m. GMT. Dealers trade in San Francisco and Los Angeles on the West coast until Tokyo opens the next day.

The foreign exchange markets comprise both spot markets and derivative markets. Spot transaction is a deal done now for settlement on a date established internationally by convention or agreement, known as the spot value date or the settlement date. The settlement date for most countries is T + 2.

The forex market also has a substantial derivatives market, the main products of which are forward exchange contracts, currency swaps, futures and options.

There is only a primary market for foreign exchange, which in the wholesale market is the exchange of deposits. There is no secondary market as participants enter into an opposite deal to reverse the initial transaction.

The spot foreign exchange market is an over-the-counter market whereas the forex derivative market is both an over-the-counter and exchange traded market.

The forex market is the domain of the large banks, and they trade as market makers. This means that they quote buying (bid) and selling (offer) prices simultaneously to clients.

Market convention dictates that the clients are obliged to disclose the size of the deal, but not whether they are buyers or sellers.

The retail equivalent of prices in the quote-driven OTC market is the prices quoted by the Bureaux de Change.

Order trading in the forex market takes place in a specialised wholesale segment of the market: the domain of the forex brokers. They trade between the forex market makers – that is, the banks place orders with the brokers and they communicate these to the other market makers.

The trading system of the forex market is telephone screen. Prices are communicated on telecommunications systems such as Reuters, but these are regarded as indication rates. Deals are accomplished by participants telephoning the banks and obtaining buy/sell (bid/offer) quotes from them.

While the clients of the banks get quotes from them under the telephone-screen trading system, the banks themselves deal internationally on an automated trading system (ATS) system. “Telephone-screen trading system” refers to the convention that banks quote exchange rates on internationally accessible computer screens (Reuters, Bloomberg), but these are not firm rates – that is, rates at which the banks will deal. They are indication (or advertised) rates, and clients telephone the banks and ask for quotes after disclosing the volume to be dealt. The rates then quoted are firm rates.

The forex brokers deal in single capacity (order only), while the banks act as market makers (quote) as mentioned. However, there are times when the banks accept specific orders (usually from smaller clients); thus, they deal in dual capacity.

The vast majority of deals take place between the banks, and there are many hundreds of banks that actively trade forex (act as principals) in the spot and forward markets; thus, to a large degree the forex market is an interbank one. The banks quote rates for a given currency (their home currency) against the USD and also other currencies. By the latter it is meant that certain banks in certain countries/markets also quote third currencies against the USD.

The banks enter into formal agreements with one another, by their signatures on the International Foreign Exchange Master Agreement, before trading with one another. This agreement spells out details such as deal size, delivery, netting and credit limit.

1.4 FOREIGN EXCHANGE MARKET PARTICIPANTS

There are many participants in the foreign exchange markets.

1.4.1 Commercial banks

Commercial banks participate in the foreign exchange market by:

- Offering to buy and sell foreign exchange on behalf of their customers (retail or wholesale) as a standard financial service.
- Trading in foreign exchange as intermediaries and market makers.
- Managing their proprietary foreign exchange positions via the interbank foreign exchange market. The inter-bank market is more accurately an inter-dealer market as investment banks and other financial institutions have become direct competitors of the commercial banks as dealers in these markets.

1.4.2 Non-bank financial institutions

Institutional investors such as insurance companies, hedge funds, pension funds, mutual funds directly participate in the foreign exchange market in pursuit of a more global approach to portfolio management.

1.4.3 Firms and corporations

Firms and corporations usually participate in the foreign exchange market because of their involvement in international trade. Firms that are importers require foreign exchange to pay suppliers. Exporters need to convert foreign currency earnings into local currency. Both importers and exporters may want to hedge currency exposures that arise in relation to trade.

Large international corporations are increasingly entering the foreign exchange market directly and not via intermediaries such as banks especially if they own factories and plants or regularly buy components abroad.

1.4.4 Central banks

Central banks sometimes intervene in the foreign exchange market to increase or decrease the supply of their currency or to purposely impact the exchange rate. In addition, central banks act as their government's international banker and handle the foreign exchange transactions for the government and public-sector enterprises such as the post office, railways and airlines.

1.4.5 Foreign exchange dealers

Foreign exchange dealers or traders work mainly for banks that are authorised to deal in foreign currencies. They act as market makers insofar as they quote both buying and selling prices for currencies, as principals, and allow the immediate execution of orders by immediately assuming the other side of a transaction. Dealers do not charge a commission on their transaction but make money on the difference between the buying and selling prices which they quote to customers and to each other.

In addition to quoting clients for their foreign exchange needs, dealers often speculate on movements in exchange rates by taking long or short positions in currencies.

1.4.6 Foreign exchange brokers

Foreign exchange brokers do not act as principals in foreign exchange transaction, rather they act as agents responsible for matching banks that want to buy certain currencies with those that want to sell them.

Brokers typically quote both buying and selling prices for currencies on behalf of foreign exchange dealers to other dealers. For example, a bank wishing to buy rand and sell dollars at a particular price will pass this order to a broker who will then relay this order to a number of other banks in the market.

The passing of orders is strictly on an anonymous basis until the deals has been concluded.

Brokers make money by charging commission or brokerage on such transactions and do not expose themselves to the risk of an open position in their currency transactions.

Many banks use some form of electronic broking service.

1.5 CURRENCY AS AN ASSET CLASS

Foreign exchange has long been regarded by institutional investors as a by-product of international asset allocation decisions. Through time investment banks and other institutions have developed currency overlay products to manage foreign exchange risk more actively for such investors, in order to assist them with generating overall higher return on their investment.

More recently, a variety of investors have been attracted to currencies as an asset class in their own right, often in the absence of any decision to purchase foreign securities. The reasons for this include the increased availability of technological platforms as well as the following factors:

- In general, currency values exhibit low correlation with other major asset classes such as shares and bonds, which is important to investors seeking effective portfolio diversification.
- Commentators argue that there are exploitable inefficiencies in currency markets due to the presence of commercial hedgers and governments who are generally not accessing these markets for profit seeking purposes.
- Since currency values are expressed relative to one another, it is impossible for all currencies to weaken simultaneously, unlike other asset classes such as shares.
- The size of foreign exchange markets and the number of participants make insider trading virtually impossible, at least in the major currencies.

A number of investment products have been developed in recent years to give investment institutions access to profit directly from exchange rates. Foreign exchange transactions involving non-bank financial institutions such as collective investment schemes, pension funds and insurance companies has increased significantly. A significant portion of this trading related to an increased interest in currencies as an asset class in their own right.

TOPIC 2 CONCEPTS RELATING TO FOREX

LEARNING OUTCOMES

After studying the topic, the learner should be able to-

- Describe the concepts relating to exchange rates and exchange rate quoting conventions.
- Understand exchange rate risk
- Understand concepts relating to investment in currency
- Outline the fees associated with forex investments

2.1 MONETARY UNIT

The currency of each country is the monetary unit of that country. In most countries the monetary unit is established under the statute that governs the operations of the central bank. For example, in South Africa this is the South African Reserve Bank Act 90 of 1989.

Almost all countries of the world trade among one another and many make investments in one another, and this involves the exchange of currencies. The currency of a country has two parts:

- The legal tender of that country – that is, its notes and coins.
- Any investment that is denominated in the monetary unit of that country, which in the forex market is a bank deposit.

The term foreign currency is synonymous with foreign exchange and means the currencies of countries other than the currency of the home country.

2.2 EXCHANGE RATES

Foreign exchange is deposits and securities in a currency other than the domestic currency

Each spot foreign exchange transaction involves two different transactions: the purchase of one currency and the sale of another currency.

Therefore, foreign exchange rates are quoted as a combination of two currencies, which is known as the currency pair.

USD/ZAR 8.2400

The currency to the left of the slash is referred to as the base currency

The currency on the right is called the term currency or variable currency.

The base currency (in this case, the USD) is always equal to one unit (USD1), and the term currency (in this case, the ZAR) is what one base unit (USD) is equivalent to in the term currency (ZAR).

These exchange rates simply tell you how much you will pay/receive if you buy/sell the base currency.

2.3 EXCHANGE RATE REGIMES

Countries following different exchange-rate regimes.

These regimes range from fixed (pegged), semi-fixed to floating exchange-rate systems. The subsections following consider these regimes.

2.3.1 Fixed exchange rate

A fixed or pegged system is characterised by a country making the decision to keep its exchange rate constant against the value of another currency (the country of which is referred to as the anchor country). This currency is usually that of a significant trading partner or debtor, so as to avoid the increase in debt repayments with a weakening exchange rate.

It should be noted that the enforcement of a fixed exchange-rate system may be done in one of two ways. China was very successful in making it illegal to trade the Yuan against the dollar at any other rate; a system that is very difficult to enforce and also encourages a black market for currency. The other method is to hold substantial foreign reserves and allow the central bank to constantly intervene through buying and selling local and foreign currency to keep the exchange rate as stable as possible. This can be costly, however, and becomes increasingly difficult should the country in question move into a trade deficit. Both fiscal and monetary policies therefore become important in terms of achieving the objectives (for example, increasing interest rates to attract foreign capital).

2.3.2 Semi-fixed exchange rate

A semi-fixed system allows for exchange-rate variations to occur within certain bands or target zones. The difference between the two lies in the central bank's level of commitment with regard to achieving an objective. With respect to a currency band, as the country's currency approaches the upper or lower target level, the central bank will adjust interest rates to keep the exchange rate within the desired band. Remember that increasing interest rates attracts foreign capital, which will strengthen the local currency as a result of the capital inflows, and vice versa. A target zone is more flexible and represents the exchange rate the central bank would prefer in terms of economic objectives.

2.3.3 Free/floating exchange rate

With a free or floating exchange rate, the rate is determined solely by market forces of supply and demand and therefore currency appreciation will occur where there is a shortage and depreciation will occur where there is a surplus.

The level of supply and demand relates very closely to the balance-of-payments account, which serves as a record of the supply of and demand for foreign capital.

Changes in exchange rates are caused by differential income growth, inflation rates and interest rates.

In reality, however, few exchange rates are truly floating, as central banks will intervene to prevent large fluctuations simply because this could have a dramatic effect in terms of trading partners.

The most significant drawback of a floating system results from market contagion, a state where an economic event causes many market participants to perform in the same manner, resulting in a so-called 'run on a currency'. This was very evident, particularly from a South African perspective, during the Asian crisis in 1997, when global investors withdrew capital from emerging economies at a rapid rate. The effect was that interest rates in South Africa rocketed to 25% in order to defend the rand and entice investors to keep capital in South Africa. For South Africans with floating debt repayments, the results were catastrophic.

The paradox arises from the fact that, in order to adopt a floating system, the central bank will often need to intervene in terms of monetary policy decisions, while the government may intervene by adjusting fiscal policies (such as altering tax laws to entice foreign investment).

The following general rules apply when managing a floating exchange rate:

- If the central bank manages to drive down inflation, foreign investors will enjoy a higher real return and the inflow of foreign capital will cause the exchange rate to strengthen.
- If the central bank adjusts short-term interest rates downwards, the currency will weaken against major trading partners (assuming they maintain interest rates) from capital outflows. Lower interest rates could also attract portfolio inflows into the equity market, strengthening the currency.
- Central banks may also intervene directly by selling foreign reserves (strengthening the local currency by injecting a supply of foreign currency into the marketplace) or vice versa. The reliance of the South African economy on exports has seen this activity occur on a few occasions.
- Finally, so-called soft interventions may take place by the central bank, creating an expectation of the future value of a currency. Media statements and press releases from key central bank role-players will have an effect on future capital inflows. For example, should the Reserve Bank Governor release a statement which says that the rand is expected to weaken (for any number of reasons), investors attempting to take advantage of carry trade transactions may well seek those returns elsewhere.

2.4 ISO CODES AND SWIFT

Every currency has a unique three letter code used by foreign exchange traders worldwide, known as the ISO Code. This is required when using the SWIFT system for the transmission of confirmation and payment messages between financial institutions.

The table following details the ISO codes for some of the major currencies.

Table 2.1: ISO codes

Currency	ISO code
South African rand	ZAR
US dollar	USD
Japanese yen	JPY
British pound	GBP
Euro	EUR

The use of these codes by professional dealers is strongly advised by the Association Cambiste Internationale (ACI); the international association responsible for promoting good practice in the international foreign exchange and money markets.

2.5 PERCENTAGE IN POINT

In the forex market, the term “pip” is commonly used, which stands for percentage in point (also called points) and is the smallest price increment in forex trading.

For the ZAR, one pip is equivalent to the fourth decimal point, which is 1/10 000 or 0,0001 of a rand (or 1/100th of a cent).

If, for example, the USD/ZAR exchange rate moves from USD/ZAR 6,8560 to USD/ZAR 6,8565, it has moved by five pips.

However, these four decimal places rule does not apply in all currency markets. For example, for the JPY (against the USD) a pip is equivalent to the second decimal place – that is, 1/100 or 0,01 yen.

Currency markets trade in pips because exchange rates generally change in one-pip movements, and forex traders, such as banks, are able to estimate profits/losses rapidly. For example, in a ZAR/USD 10 million trade a movement of one pip (i.e. ZAR 0,0001), at USD/ZAR 7,0000 is worth ZAR 7000.

2.6 DIRECT AND INDIRECT QUOTATIONS

It is convention internationally to quote the USD as the base currency and the other as the variable currency, as we did above in the case of the ZAR.

However, this is not the only way in which exchange rates are quoted; they are also quoted where the USD is the variable currency and the other the base currency. An example is GBP/USD 1,6550 meaning that one GBP is bought for USD 1,6550.

In this regard the terms direct quotation and indirect quotation apply.

Some of the literature on forex markets is confusing in this respect. However, the approach used by the forex dealers in South Africa is the following:

- A quotation USD/ZAR 7,4500 (i.e. a variable number of units of local currency per one USD) is called a direct quotation against the USD.
- A quotation such as CHF/USD 0,1342 (i.e. a variable number of USD per one Swiss franc) is called an indirect quotation against the USD.

The majority of currencies (about 185) are quoted against the USD according to the direct quotation method, as in the case of the ZAR. However, the exceptions are as follows:

- UK pound sterling (GBP) (e.g. GBP/USD 1,6550)
- New Zealand dollar (NZD) (e.g. NZD/USD 0,7338) Australian dollar (AUD) (e.g. AUD/USD 1,1005)
- European Monetary Union members (e.g. EUR/USD 1,3425)

Exchange rates may be inverted. This is called a reciprocal or inverse quotation, which is defined as the reciprocal of the quotation method usually employed.

For example, the normal USD/ZAR 7,4500 quotation may be inverted to ZAR/USD 0,1342 (1/7,4500).

This quotation would be called an indirect quotation. Similarly, the normal GBP/USD 1,6550 quotation may be inverted to USD/0,6042 (1/1,6550), in which case it is called a direct quotation.

2.7 BIDS AND OFFERS

In the foreign exchange market, exchange rates are quoted by dealers as two prices: a bid and offer price.

The bid is the first rate quoted in a two-way price and is the price at which the bank is prepared to buy the base currency in exchange for a certain amount of the term currency. The offer price is the second price quoted and is the price at which the bank is prepared to sell the base currency in exchange for a certain amount of the term currency.

In the case of the quotation USD/ZAR 7,3400/7,3500. The price on the left of the slash is always the bank's buying price and one on the right is the bank's selling price of the base currency. The bank is bidding to buy the base currency against the term currency at the cheaper price of ZAR 7,3400, and offering the base currency against the term currency at the dearer price of ZAR 7,3500. Some dealers may call these prices bid and as.

2.8 CONVERTING BASE AND VARIABLE CURRENCY AMOUNTS

When converting from a given base currency amount to the equivalent term currency amount, the rule is to multiply by the appropriate side of the exchange rate.

Example

A dealer quotes USD / ZAR 7,1980 / 7,11985. A client wishes to buy USD 10 million and sell ZAR. How many ZAR must he pay?

Since the client is buying the base currency (bank sells base); the offer rate will be used.

Therefore; the client must pay 10 million X 7,1985 = ZAR 71 985 000

When converting from a given term currency amount to the equivalent base currency amount, the rule is to divide by the appropriate side of the exchange rate.

Example

A fund manager wishes to buy ZAR 10 million against the USD. The price quoted by the foreign exchange dealer is 7,4140 / 7,4145. How many USD must the fund pay to the dealer in exchange for the ZAR?

Since the client is selling the base currency (bank buys base); the bid rate will be used.

Therefore; the hedge fund must pay 10 000 000 / 7,4140 = ZAR 1 348 799.57

2.9 BID OFFER SPREAD

The difference between the dealer's bid and offer prices is known as the spread and is the main way in which banks make a profit from foreign exchange transactions with their clients: by buying currencies at a cheaper rate than the price at which they sell. The spread is determined by a number of factors:

- The norm in a particular market.
- Prevailing liquidity in the particular currency pair.
- Volatility in the market.
- The amount quoted.
- The client or counterparty.

Generally speaking, wider spreads reflect one or more of the following: a less developed market; relative illiquidity; high volatility; larger amounts and a less price-sensitive client.

For example, assume a South African importer wants to buy USD 1 million from a bank. The bank quotes the following rates: USD/ZAR 6.5230-6.5280. Since the importer is buying USD and selling ZAR – the bank is selling USD and buying ZAR – the offer rate of R6.5280 applies and the cost to the importer will be R6 528 000 i.e., $\text{USD}1\,000\,000 \times \text{R}6.5280$.

Furthermore, assume a South African exporter wishes to sell USD 1 million to the bank and is quoted the same rates. Since the customer is selling USD and buying ZAR - the bank is buying USD and selling ZAR - the bid rate of R6.5230 applies and the exporter will receive R6 523 000 i.e., $\text{USD}1\,000\,000 \times \text{R}6.5230$.

The bank earns the margin between its bid and offer prices, in this case R5 000 i.e., $\text{R}6\,528\,000 - \text{R}6\,523\,000$.

2.10 CROSS RATES

The USD is sometimes called the vehicle currency because every country trades its currency in terms of the USD. Thus, one can get a USD/ZAR quote, a USD/MWK (Malawi kwacha) quote, a USD/RUB (Russian rouble) quote, a USD/UYP (Uruguay peso) quote, etc., but one cannot get a “straight” ZAR/UYP or a ZAR/MWK quote, or even a GBP/ZAR quote.

The following is pertinent in this regard:

- All of the smaller countries of the world do not trade in their own currencies with one another.
- All currencies trade against the USD.
- Historically the interbank forex market has traded currencies against the USD, because the participants wanted to keep the number of individual quoted rates/ prices to a minimum. There are some 190 currencies that have ISO codes.
- Even if there was trade between all currencies, the liquidity in each market would be low indeed. With each currency trading against the USD, liquidity is reasonable or high, producing the positive consequence that the rates between non-USD currencies are more efficient.

In the case of non-USD currencies, rates/prices are calculated from the prices of the relevant currencies against the USD. The results of these calculations are called cross-rate. Thus, a cross-rate is an exchange rate between two currencies, neither of which is the USD.

The rates used to calculate a cross rate are normally the rates of the respective currencies against the USD.

There are three different methods for calculating cross-currency rates and care must be taken when deciding which of these methods is appropriate in a particular situation; this depends on how the two rates against the dollar are quoted.

2.10.1 Both the base and counter currencies of the two quotations differ

In this case the appropriate formula is to multiply the bid of the one exchange rate by the bid of the other to arrive at the bid of the cross rate. Similarly. The two offer rates are multiplied together to calculate the offer of the cross rate.

Example

Given that:

$$\text{GBP/USD} = 1,9750 / 1,9755 \text{ and } \text{USD/ZAR} = 7,4950/7,5150$$

Then:

$$\text{GBP/ZAR} = (1,9750 \times 7,4950) / (1,9755 \times 7,5150)$$

$$\text{GBP/ZAR} = 14,8026/14,8459$$

2.10.2 Base currency is the same in the two quotations

In this instance, the cross rate is derived by dividing across, i.e. bid by offer and offer by bid. The denominator of the calculation is the currency that is the desired base currency of the cross rate.

Example

Given that:

$$\text{USD/ZAR} = 7,4950/7,5150 \text{ and } \text{USD/JPY} = 122,20/ 122,25$$

Then:

$$\text{JPY/ZAR} = (7,4950 \div 122,25) / (7,5150 \div 122,20)$$

$$\text{JPY/ZAR} = 0.0613/0.0615$$

2.10.3 Counter currency is the same in both quotations

Once again, the correct procedure is to divide across, bid by offer and offer by bid. This time the desired base currency of the cross-currency rate is the numerator of the calculation.

Example

Given that:

$$\text{GBP/USD} = 1,9750/1,9755 \text{ and } \text{AUD/USD} = 0,9890/0,9900$$

Then:

$$\text{GBP/AUD} = (1,9750 \div 0,9900) / (1,9755 \div 0,9890)$$

$$\text{GBP/AUD} = 1,9949/1,9975$$

2.11 FOREIGN EXCHANGE RATE RISK: APPRECIATION AND DEPRECIATION

At first glance it may seem irrelevant which way an exchange rate is expressed. However, it is important because the words appreciation and depreciation of a currency are used in the market, and this may be confusing if the wrong method is used.

If the USD/ZAR exchange rate changes from USD/ZAR 10,00 to USD/ZAR 10,20, it may seem to some that the ZAR has appreciated. However, it has actually depreciated. In the first case, ZAR 10,00 was required to purchase USD 1, whereas in the second case, ZAR 10,20 was required. This means that the USD has appreciated, and the ZAR has depreciated. When these two exchange rates are inverted, they become ZAR/USD 0,1000 and ZAR/USD 0,0980. The same conclusion is arrived at: fewer USD are acquired per ZAR in the second case compared with the first. The ZAR has depreciated against the USD, and the USD has appreciated against the ZAR.

It is to be noted that the ZAR depreciation and the USD appreciation are not the same in percentage terms. If, for example, the USD/ZAR exchange rate shifts from USD/ZAR 10,00 to USD/ZAR 12,50, it has changed by +ZAR 2,50 per USD. The South African buyer of USD has to pay ZAR 2,50 more per USD. Thus, the USD has appreciated by 25% over the period. It is important to highlight two issues here. The first is that the terms appreciation and depreciation must be used with care. In the above example, where the USD appreciated by 25%, some would say that the converse also applies – that is, that the ZAR depreciated by 25%. This is not the case. The ZAR depreciated by a different percentage.

The rule that applies here is that the currency that appreciates or depreciates is the base and not the variable currency. In the above case the base currency is expressed in USD. The second point refers to the period over which the change has occurred. Note that the USD appreciated between the day the ZAR was quoted as USD/ZAR 10,00 and the day the ZAR was quoted as USD/ZAR 12,50. It could be a few days, weeks or months. It is therefore not necessarily an annual rate; it is a change over a period.

The calculation of the depreciation or appreciation in percentage terms is as follows:

$$\begin{aligned}\text{Percentage change in exchange rate} &= \frac{\text{Change in exchange rate}}{\text{Original exchange rate}} \times 100 \\ &= \frac{2.50}{10.00} \times 100 \\ &= 25\%\end{aligned}$$

As noted, this is the percentage change in the USD, and this is because the USD is the base currency.

The extent to which the ZAR depreciated is calculated by inverting the above two exchange rates – that is, to the number of USD in terms of one ZAR. The ZAR becomes the base currency.

$$\text{Original exchange rate} = \frac{1}{10} = \text{USD/ ZAR } 0,1000$$

$$\text{New exchange rate} = \frac{1}{12.50} = \text{USD/ ZAR } 0,0800$$

$$\begin{aligned}\text{Percentage change in exchange rate} &= \frac{\text{Change in exchange rate}}{\text{Original exchange rate}} \times 100 \\ &= \frac{-0,0200}{0.1000} \times 100 \\ &= -20\%\end{aligned}$$

In this case the ZAR depreciated by 20% whereas the USD appreciated by 25%.

2.12 WHY EXCHANGE RATES ARE IMPORTANT

Exchange rates are important because they affect the relative price of foreign and local goods, and the relative value of investments. Clearly, the price of US goods for a local importer is a function of two factors:

- The price of the goods in USD.
- The USD/ZAR exchange rate.

If an HP laptop computer in the US costs USD 2000 and the ZAR/USD exchange rate is USD/ZAR 10 on T+0, the computer will cost ZAR 20 000 (2000 × ZAR 10).

If the purchaser waits for three months to T+91 days, and the exchange rate moves to USD/ ZAR 10,5 (i.e. the USD appreciates and the ZAR depreciates), assuming the USD price of the computer remains unchanged at USD 2000, the computer will cost ZAR 21 000 (i.e. 2000 × ZAR 10,5).

Similarly, if a US citizen had waited from T+0 to T+91 days before purchasing a giraffe costing ZAR 100 000 for her zoo, she (assuming the price of the giraffe over the period remained unchanged in ZAR), would have saved USD 500: T+0: USD/ZAR 10,0 = ZAR/USD 0,10; $100\ 000 \times \text{USD } 0,1 = \text{USD } 10\ 000$ T+91: USD/ZAR 10,5 = ZAR/USD 0,095; $100\ 000 \times \text{USD } 0,095 = \text{USD } 9500$

It will be apparent that because of the ZAR depreciation (USD appreciation) the price of US goods in ZAR terms increased. By the same token, the prices of local goods in USD terms fell. Thus, ZAR depreciation lowers the cost of local goods in America but raises the cost of American goods in South Africa.

The conclusion reached is that currency depreciation leads to that country's goods becoming cheaper in foreign countries, and foreign countries' goods becoming more expensive in the local country.

Currency appreciation leads to the country's goods becoming more expensive in foreign countries, and foreign countries' goods becoming cheaper in the country. It will be evident, therefore, that if the ZAR appreciates meaningfully, it becomes more difficult for local exporters to export. It is difficult for South Africa to compete with other countries whose currencies have not appreciated. This is because South African goods become more expensive offshore. At the same time, foreign goods become cheaper in South Africa, leading to higher South African imports. It also becomes cheaper for South Africans to travel abroad. The consequence, of course, (depending on the circumstances) is that this situation is usually not sustainable and eventually leads to ZAR depreciation at some stage.

2.13 THEORIES OF EXCHANGE RATE DETERMINATION

2.13.1 Purchasing power parity

Purchasing power parity (PPP) is the theoretical relationship between the current spot rate and the expected future spot rate via inflation differentials. Since inflation rates and the expected future spot rate do not trade in financial markets on a continuous basis, PPP is not bound by arbitrage but instead gives us an idea of where exchange rates should be headed over longer periods of time.

PPP represents the theory that identical goods and services should be the same price in all countries. If all goods and services must be the same price, it is possible to determine an exchange rate by looking at the different prices in each geographic location. For example, if a litre of milk is sold for \$1 in the United States and €0.90 in Paris, in order for PPP to exist, the dollar to euro exchange rate must be $\$1 = \text{€}0.90$ or $\text{€}1 = \$1.11$. If milk is 80c in Paris, it is, in effect, cheaper than in the United States. It would therefore make sense for importers from the United States to bring in milk at €0.80 (costing \$0.89) and sell it immediately for \$0.90, making a riskless profit of 1c per litre of milk.

This process is known as arbitrage and takes advantage of mispriced markets in this way. Arbitrage plays an important role, however. An exchange rate is determined by the supply of and demand for a particular currency. Excessive trading activity from importers in the US seeking to take advantage of a 1c riskless profit increases the number of dollars on the market, as importers exchange dollars for euros in order to buy the milk.

PPP implies that movements in exchange rates should exactly match relative inflation differentials between countries. If the real (inflation-adjusted) exchange rate is equal to the rate at the beginning of the period, then PPP has held over the period. If not, it is an indication that the current spot rate of exchange is either too high or too low relative to the PPP equilibrium.

An important implication of PPP is that a country with high inflation, and thus rising prices of domestic goods should expect a weakening of its currency in relation to its trading partners in order to maintain an equilibrium exchange rate.

While PPP obviously makes economic sense, it does not hold in the real world and forecasts of exchange rates based on this theory are notoriously inaccurate, except perhaps in the very long run.

There are several reasons why PPP does not hold in practice:

- PPP ignores such impediments to the free flow of goods across countries as tariffs and quotas.
- PPP is focused on trade-related goods and usually ignores other flows such as portfolio investments and disinvestments.
- Domestic markets are often oligopolistic.
- Some countries maintain exchange rates which are artificially high or low, using techniques such as currency pegs and intervention strategies.

2.13.2 Balance of payments

Another approach to explaining the level of exchange rates is to assume that the rate will adjust to achieve equilibrium in the balance of payments between two countries, especially for the current account.

Accordingly, a country that is experiencing net outflows as a result of imports exceeding exports should experience a weakening of its currency in order to render imports more expensive and thus reduce their number while making exports cheaper in other currencies and thus increase demand from abroad. Either or both of these two effects should ensure that the existing deficit disappears.

The apparently simple logic of this argument has inspired countries to artificially weaken their currencies to achieve a competitive devaluation for the purpose of stimulating the domestic economy.

While this theory may or may not have some validity in the very long run, it is not particularly useful in explaining exchange rates over shorter period.

2.13.3 Principle of interest rate parity

Interest rate parity states that the net rate of return from an investment offshore should be equal to the interest earned minus or plus the forward discount or forward premium on the price of the foreign currency involved in the transaction

This says that the interest differential between two currencies is related to the forward discount or premium, and that interest rate parity is reached when the interest rate differential is equal to the discount or premium on one of the currencies.

This condition in the forward market is brought about by arbitrage.

If ZAR interest rate increases by more than USD interest rate the numerator (ZAR) will increase by more than the denominator (USD) and thus result in a forward rate that is higher than the spot rate.

Once again, in practice this theory does not hold much water and the empirical evidence has often shown the theorem to be wrong.

2.13.4 Inflation and interest differentials

A country with consistently higher levels of inflation will likely experience a depreciation in currency values. This is simply due to the fact that goods will become more expensive at a quicker rate when compared to its trading partners, which will cause lower demand for local goods and local currency. It follows that interest rates and inflation are highly correlated, in that higher interest rates will be present in an effort to control inflation and the exchange rate. Increasing interest rates will result in foreign portfolio inflow and result in a subsequent strengthening of the local exchange rate. However, investors will actively seek the most favourable interest rate with the lowest level of inflation, as the gains in terms of the interest rates will be cancelled out by the depreciating currency level from the higher inflation.

2.13.5 Interest rate factors

Interest-rate factors are merely an extension of the discussion above. We have just mentioned that investors will seek the best balance, or rather the best combination of the highest interest rates with the lowest inflation rate. Effectively, we are referring to the highest real return. The Fisher Effect states that the nominal interest rate is equal to the real interest rate plus the expected inflation rate:

$$(1 + \text{nominal rate}) = (1 + \text{real rate}) + (1 + \text{expected inflation})$$

The cross-product term (real rate \times expected inflation) is usually small and can be ignored, hence the following approximation:

$$\text{Nominal rate} = \text{real rate} + \text{expected inflation}$$

Reworking this equation results in the following:

$$\text{Real rate} = \text{nominal rate} - \text{expected inflation}$$

Countries that are able to offer the highest real rates of return (the biggest difference between nominal rates and inflation) will therefore enjoy an appreciating currency, as foreign capital flows into the country from increased demand for local currency needed to purchase its securities.

2.14 FUNDAMENTAL VERSUS TECHNICAL ANALYSIS

Fundamental analysis involves basing investment decision-making on the fundamental expected cash flows of a bond or equity. In the case of forex, the fundamental analysis would be related to weighing up the various interrelated economic factors that will ultimately affect the supply and demand for a particular currency. Fundamental analysis involves the process of working from the broader macroeconomic variables (such as growth, inflation, interest rates, monetary and fiscal policy) to microeconomic variables (supply and demand) and to the finer details of the instrument being analysed.

Technical analysis will be used to make investment decisions, based on analysis of historical price, volume and momentum indicators of a particular currency. There are a number of technical analysis theories that can be used to make these investment decisions. Technical analysis is predicated on the theory that all public and private information is incorporated in historical and current share price movements, to varying degrees and, as such, they can be used for decision-making.

2.15 HEDGING VERSUS SPECULATING IN THE FOREIGN EXCHANGE MARKET

Speculation involves trying to make a profit from an asset's price change, whereas hedging attempts to reduce the amount of risk, or volatility, associated with an asset's price change.

Hedging usually involves taking an offsetting position in a derivative to balance any gains and losses to the underlying asset. Hedging attempts to eliminate the volatility associated with the price of an asset by taking offsetting positions contrary to what the investor currently has.

The main purpose of speculation, on the other hand, is to profit from betting on the direction in which an asset will be moving.

2.16 FEES ASSOCIATED WITH FOREX INVESTMENT

2.16.1 Broker fees

The services of a broker, who is registered with the JSE as an authorised user, are required in order to trade forex on-exchange. Brokers charge a commission or brokerage fee (calculated as a variable percentage of the value of the transaction) for facilitating the trade, depending on trading volume. The fee will vary between brokers. The bid/ask spread offered to retail clients who are transacting in small denominations can be up to 2.5% wide. This spread will be a lot tighter for institutional investors, who will also pay a considerably lower brokerage fee.

2.16.2 Portfolio management fees

An investor may decide to appoint a discretionary manager to manage her investment portfolio or she may decide to invest in a collective investment scheme, which has exposure to forex and/or offshore asset exposure. In this case, the manager of the portfolio or collective investment scheme will charge a fee based on the value of the portfolio.

An annual management fee is payable by investors to the asset manager for the ongoing management of their investment. The management fee differs between different funds and asset managers. It is also common to find different fee classes for a specific fund. The different fee classes are created for different target clients; for example, institutional clients, retail clients and clients accessing the fund through an investment platform. Some funds may charge a performance fee.

Administrative charges relate to the costs payable to the administrators, custodians and auditors of the fund.

Transaction costs are incurred when securities are traded. Value-added tax (VAT) is payable by the manager on all fees charged by it.

2.16.3 Fees applicable to an investment adviser

Clients who make use of a financial adviser will be charged a fee for advice. An initial fee, which is expressed as a percentage of the initial investment, may be charged for the initial advice. Furthermore, clients will have to pay an ongoing advice fee for ongoing services rendered to the client.

2.16.4 Investment platform fees

It is often more convenient and cost effective to access unit trust investments through an administrative financial services provider, commonly known as an investment platform. By using an investment platform, the investor can effortlessly switch between funds of different providers. Often these providers will offer lower fee classes to investors who choose to invest through an investment platform, as opposed to investing directly. The investment platform will charge an administrative fee for its services.

TOPIC 3 REGULATORY FRAMEWORK

LEARNING OUTCOMES

After studying the topic, the learner should be able to-

- Outline the regulatory framework as applicable to the foreign exchange market.

3.1 EXCHANGE CONTROL REGULATIONS

Exchange controls have been imposed on South African residents since the early 1930's and they have been periodically tightened and relaxed ever since, largely in the an attempt to prevent capital flight as a result of increased political tensions in the country during the years of the apartheid regime.

In the last several years, the authorities in South Africa have, in general, pursued a policy of minimal intervention in the foreign exchange market and gradual relaxation of exchange controls, permitting, for example, greater amounts of foreign investment by South African individuals, investment institutions and corporations.

Foreign exchange control regulation and legislation in South Africa are important considerations for participants in the foreign-exchange market. The applicable legislation pertains to section 9 of the Currency and Exchanges Act, 1933 (Act No. 9 of 1933) and the Exchange Control Regulations of 1961. Some of the key features of local exchange control regulations are as follows:

- The SARB is responsible for the enforcement of the exchange control regulations and the appointment of authorised dealers who are the only entities permitted to trade in foreign exchange instruments and physical gold.
- Transaction in the foreign exchange market by non-authorised dealers must be supported by documentation showing what the SARB describes as clear and ascertained foreign exchange commitment and thus speculation is not permitted.
- Foreign currency proceeds from the export of goods must be converted into rand within a certain time frame.
- A taxpayer can invest up to R10 million in his/her name outside the Common Monetary Area (Lesotho, Swaziland and Namibia), per calendar year. A tax clearance certificate (in respect of foreign investments) must be obtained. In addition to this, up to R1 million can be transferred abroad, within the single discretionary allowance facility, without the requirement to obtain a tax clearance certificate.
- Visit the following SARB link to read more in respect of the restrictions and rules that apply regarding gifts, travelling, loans and family members living offshore:

3.2 CODE OF CONDUCT FOR FSPS CONDUCTING FOREX INVESTMENT BUSINESS

In addition to the General Code of Conduct and any other specific codes that might apply, a financial services provider that is authorised to provide financial services in foreign investments must also comply with the Code of Conduct for FSPs conducting Forex Investment business.

3.2.1 Introduction

The reference to foreign currency denominated investments, excluding foreign currency investments has been further defined in the Code as forex trading based on price fluctuations in the forex market but excluding forex transactions of authorized dealers and their agents.

The regulations were also amended to include an application procedure whereby a Forex Financial Services Provider (FFSP) must apply for approval of a clearing firm or a foreign FFSP.

The regulatory status of the foreign FFSP must be disclosed, while the regulatory regime under which it operates must be to the satisfaction of the commissioner.

The commissioner may therefore decline to approve an application for approval of a clearing firm or foreign FFSP because the regulatory regime in the country of origin is not satisfactory.

3.2.2 General Duties

A Forex financial services provider must:

- Ensure that investment moneys reach the final destination stated in the mandate without delay.
- Act in the interests of the client
- Act in good faith and with due skill, care and diligence.
- Observe high standards of market conduct.
- Provide clients with information about the client's investment, market practices and risks inherent in the different products.
- Obtain from client's information about the client's financial situation, investment experience and investment objectives.
- Avoid conflicts of interest but if they arise, disclose them to the client or decline to act for the client.
- Explain to a client how fees and other charges are calculated in sufficient detail to enable the client to understand the method of calculation.
- Ensure that its staff and representatives are properly trained as required by the FAIS Act.

- Apply for approval to the commissioner prior to appointing a clearing firm or foreign FFSP in terms of the Regulations.

3.2.3 Disclosure Requirements

A Forex financial services provider must disclose the following to its client:

- If a foreign FFSP is involved and the extent of its powers over clients' funds while ensuring that client's funds are kept separately.
- All fees and other charges, whether direct or indirect.
- Non-cash incentives or other indirect consideration payable by another FSP, product supplier or other person.
- The name and address of the foreign FFSP or clearing firm, the foreign regulator and whether the foreign FFSP or clearing firm is registered by the regulator.
- Whether the foreign FFSP or clearing firm has insurance cover against fraud, dishonesty and negligence and the extent of the cover.

3.2.4 Prohibitions

A Forex financial services provider may not directly or indirectly:

- Induce a client to enter into a mandate or any other agreement relating to forex investments by means of a misleading statement, promise, forecast or any other action.
- Sell to or provide a third party with the client's details without the client's prior written agreement.
- Charge a client termination fees except for accrued fees for services rendered before termination.
- Receive, intermediate on or deal with funds not cleared under exchange control laws.
- Advise a client to deal in a self-directed forex account (i.e. an account in which the client has the discretionary dealing power) or in the case of a managed account, deal on behalf of a client where the minimum leverage applied to the client will on a regular basis exceed industry norms.
- Churn the client's account (i.e. trade excessively to maximize commissions or revenue to the FFSP).
- Quote hypothetical investment returns or real investment returns for a period shorter than 12 months when promoting or advertising forex investments.
- State or imply in the promotion or advertising of forex investments that past investment returns will be repeated.

3.2.5 Mandates

The Forex financial services provider must obtain either a signed mandate or an electronic mandate that records the arrangements between the client and the FFSP before rendering intermediary services regardless whether the client is opening a self-directed account or a managed account.

Electronic mandates must be subject to procedures ensuring personal identification and security of information.

The mandate must make provision for the following: -

- Whether the investment is self-directed or managed.
- The investment objectives.
- In the case of managed investments, investment or jurisdiction restrictions regarding regulatory environment, specific currency pairs, limitations on maximum draw down (reduction in an account because of trades), limitations on leverage and margin requirements and margin call rules.
- A statement of the risks inherent to forex investments including currency, event, operational and leverage risk.
- In whose name the forex investments are to be made which could be the client, the omnibus account holder controlled by the foreign FFSP or the omnibus account holder controlled directly or indirectly by the FFSP.
- Bank details of the FFSP and foreign FFSP or clearing firm.
- The basis on which, the way and the intervals at which cash accruals received by the FFSP on behalf of the client must be paid over.
- Restrictions on withdrawals of principal amounts or profits, where applicable.
- The basis on which, the way and the intervals at which the FFSP will be remunerated. The basis may not consist of a reference to a source outside of the mandate or place it within the discretion of any person.
- Whether the FFSP receives commission, incentives, fee reductions or rebates from a foreign FFSP or any other institution for placing the funds with it.
- State that a report or statement by the foreign FFSP acting as clearing member detailing transactions must be made available to the client within 24 hours of receiving it by the FFSP or foreign FFSP.
- Empower either party to terminate the mandate on written notice of not exceeding 60 days.
- Details of insurance covering losses due to fraud, dishonesty and negligence.

Prior to entering any mandate, the FFSP must apply for approval of a specimen mandate. When drafting an actual mandate, no substantial amendment may be made to the specimen without the approval of the commissioner.

On termination of a mandate, all cash, financial products and documents of title must be returned to the client accompanied by a detailed statement of account.

3.2.6 Reporting to Clients by forex investment intermediaries

Written client reports or electronic reports if so desired by the client detailing investment performance up to and including the last day of the previous calendar month, must be furnished on request or in the case of managed accounts, monthly.

The report must contain such information as will enable the client to draw up a set of financial statements, determine the changes in the market value of the investment and the charges levied over the reporting period.

On request, a Forex financial services provider must also supply the following information: -

- The original value of the forex investment and the current market value thereof.
- Currency pairs purchased and sold during the period.
- Cash receipts and payments during the period.
- Profits and losses realised during the period.
- The leverage employed during the reporting period.

3.2.7 Insurance

A Forex financial services provider must maintain such guarantees or professional indemnity and fidelity insurance cover as the commissioner may determine. If a forex FSP does not hold client investments in safe custody, it must ensure that the foreign forex FSP or clearing firm that holds such deposits holds the required insurance cover.

3.2.8 Special Provisions for Forex Investment Advisors (FIA's)

A forex investment advisor must, prior to referring a client to a forex intermediary, ascertain whether it is authorised and if not, whether it should be authorised. If so, the FIA may not refer clients to the intermediary.

A FIA must commence its business relationship with a client with a written or electronic application form recording the arrangement between the parties, including the intermediary involved, and must disclose the following:

- If the FIA deals with one or more intermediaries.
- If the client will deal directly with the intermediary or through the FIA.
- Whether the advice will relate to a managed account or a self-directed account.
- The contact details of the FIA, intermediary and the client.
- That the intermediary is an authorized FSP and the license number.
- Whether the investments in the case of managed forex accounts will be made in the name of the client at the foreign FFSP acting as a clearing firm or in the name of an omnibus account holder under direct or indirect control of the FFSP.
- Information on the applicable exchange control measures regarding the forex investment.

- The amount of the investment and the term of the investment.
- Separately in respect of the FIA and the intermediary, the total fees and benefits to be received by each, by way of a deduction from the investment or not, including the initial fees or costs, ongoing fees or costs and any other benefit, fees or costs, whether in cash or kind.

The FIA must apply for approval of the application form from the commissioner. No substantial amendment may be made to the specimen without the approval of the commissioner.

The FIA must enter into a written agreement with each forex intermediary, which records the arrangements between them. It must also make provision for the provision of reporting to the client by the intermediary and termination on written notice not exceeding 60 days.

3.2.9 Records of Advice

, the FIA must maintain a record of advice furnished to the client reflecting the following:

- A brief summary of the information and material on which the advice was based.
- The financial products considered.
- A description of the particular forex investment that was recommended and an explanation of why a forex investment is likely to satisfy the client's identified needs and objectives.
- The investment of each client must be recorded individually.

The FIA must provide the client with a copy of the record of advice.

3.3 FOREX GLOBAL CODE OF CONDUCT

The FX Global Code is a set of global principles of good practice in the foreign- exchange market, developed to provide a common set of guidelines to promote the integrity and effective functioning of the wholesale foreign- exchange market. It was developed by a partnership between central banks and market participants from 16 jurisdictions around the globe.

The purpose of the Global Code is to promote a robust, fair, liquid, open and appropriately transparent market in which a diverse set of market participants, supported by resilient infrastructure, are able to confidently and effectively transact at competitive prices that reflect available market information and in a manner that conforms to acceptable standards of behaviour.

The Global Code does not impose legal or regulatory obligations on market participants, nor does it substitute the regulation. Rather, it is intended to serve as a supplement to any and all local laws, rules and regulations by identifying global good practices and processes.

The code can be accessed online at: https://www.globalfx.org/docs/fx_global.pdf

TOPIC 4 FOREX INSTRUMENTS

LEARNING OUTCOMES

After studying the topic, the learner should be able to-

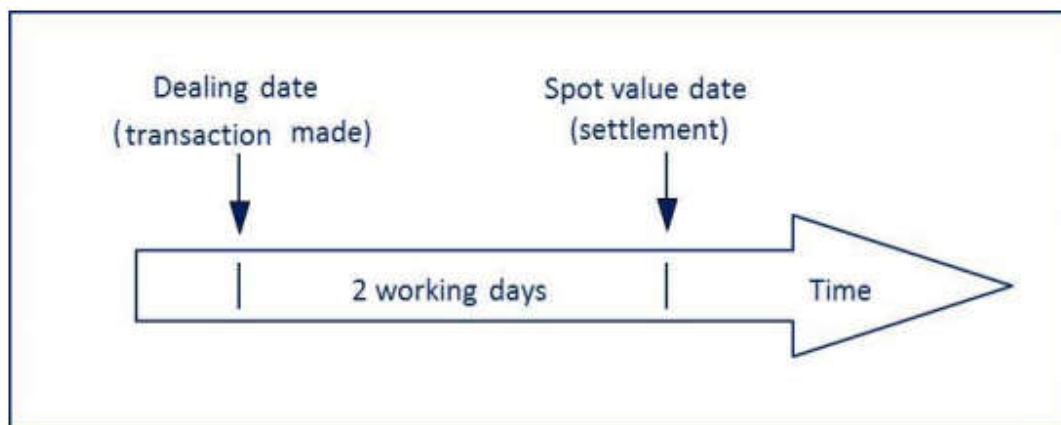
- Describe the features of the different forex instruments.

4.1 THE SPOT TRANSACTION

A spot transaction is a transaction involving the trade in a currency based on the spot rate.

The spot rate is quoted for 'immediate' (in practice, two working days) delivery as illustrated in following.

Figure 4.1: Spot transactions - dealing and value dates



There are two spot rates for a currency. The bid rate is the rate at which one currency can be purchased in exchange for another while the offer rate is the rate at which one currency can be sold in exchange for another.

The bid rate is the rate the bank is willing to pay to buy USD (and sell the non-USD currency) and the offer rate is the rate at which the bank will offer to sell USD (and buy the non-USD currency). The difference, or spread, between the two rates provides the bank's profit margin on transactions.

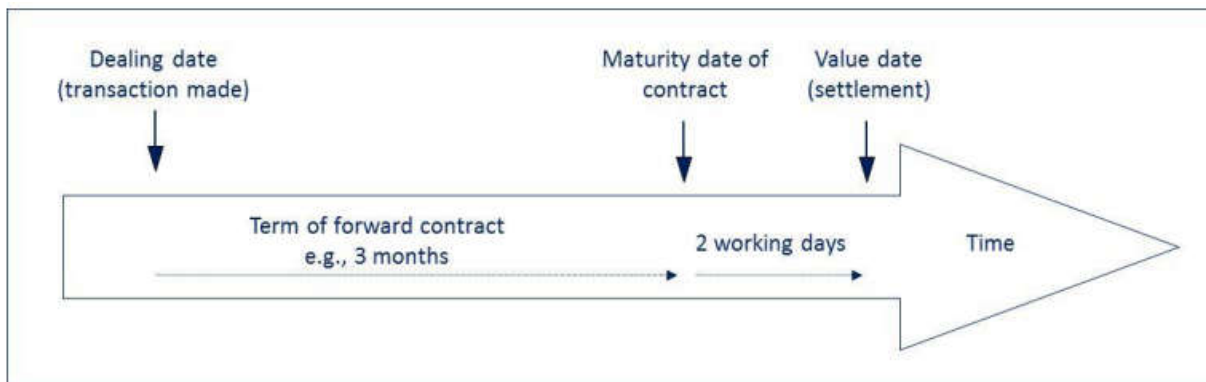
4.2 OUTRIGHT FORWARD

An outright foreign exchange forward transaction, like a spot transaction, is a straightforward single purchase of one currency for another.

The only difference is that where a spot transaction is settled or delivered on a value date (settlement date) no later than two business days after the deal date, an outright forward transaction is settled on any pre-determined date three or more business days after the transaction date.

Forward transactions are known as forward exchange contracts or forward contracts.

Figure 4.2: Forward transaction - dealing and value dates



Forward rate is calculated as follows:

$$\text{Forward rate} = \text{Spot} \times \left[\frac{1 + \left(\text{Terms currency interest rate} \times \frac{\text{Forward Days}}{\text{Terms currency day base count}} \right)}{1 + \left(\text{Base currency interest rate} \times \frac{\text{Forward days}}{\text{Foreign currency day base count}} \right)} \right]$$

Remember that the day base count for ZAR = 365 and day base count for USD = 360.

The forward exchange rate may be calculated by dividing the ZAR forward consideration by the USD forward consideration.

Example

Consider the following details of an outright forward and calculate the forward rate:

- Forward period: 60 days
- Spot rate = USD/ZAR 7.50
- Interest rate base currency = 5.0% p.a.
- Interest rate variable (terms currency) = 10.0% p.a.

$$\begin{aligned} \text{Forward rate} &= 7.5 \times ((1 + (0.10 \times 60/365)) / (1 + (0.05 \times 60 / 360))) \\ &= 7.56 \end{aligned}$$

The forward exchange rate may be higher (premium) or lower (discount) than the spot exchange rate, rarely are they the same – although this is theoretically possible. The difference between the forward rate and the spot rate reflects the interest rate differential between the two currencies. If this were not the case forward contracts would be used to earn risk-free profits through arbitrage.

Forward rates as such are not quoted but the premium or discount points to the spot rate are. One point is equivalent to 0.0001 of the currency in question. Given direct quotations the forward rate is obtained by adding the premium to or subtracting the discount from the spot rate (with indirect quotations, the opposite is the case).

For example, if the spot exchange rate is USD/ZAR 6.4340 - 6.4350 and the 3-month forward premium is 580-590. Since ZAR is trading at premium to USD, the forward USD/ZAR rate is 6.4920 – 6.4940 (i.e., 6.4340 + (580/10000) and 6.4350 + (590/10000)).

4.3 FOREIGN EXCHANGE SWAPS

A Forex swap is the exchange of two currencies now at a specified exchange rate coupled with an agreement to exchange the same two currencies at a specified future date at the specified exchange rate plus or minus the swap points.

For example, if a US bank needs temporary working capital in Germany and does not want to run the exchange risk of re-converting EURO to USD, it will purchase say EUR 1 million against USD and simultaneously sell the EUR forward. The account of the US bank in Germany will show a credit balance of EUR 1 million because of the spot purchase. However, the company's position in EUR will be zero because it has sold the same amount forward.

The specified exchange rate does not have to be the current exchange rate but usually is a rate close to the current rate – it is a benchmark rate on which the "points" are based

Swaps points are also called forward points and are quoted, for example, as 590 / 600.

This quote is interpreted as follows:

- The left side (specified exchange rate + 590 / 10 000 points) is the rate at which the quoting bank will buy USD in 60 days for USD sold spot now.
- The right side (specified exchange rate + 600 / 10 000 points) is the rate at which the quoting bank will sell USD after 60 days for USD bought spot now.

4.3.1 Calculations

Forward swap points = outright forward – spot price

Outright forward = spot price + forward swap points

Example

Consider the following information and calculate the outright forward exchange rate.

- Spot exchange rate = USD / ZAR 7.5
- USD 6-month deposit rate = 5% pa
- Forward exchange rate = 7.56028535

$$\begin{aligned}\text{Forward swap} &= \text{outright forward} - \text{spot price} \\ &= 7.56028535 - 7.5 \\ &= 0.06028535\end{aligned}$$

$$\begin{aligned}\text{Outright forward} &= \text{spot price} + \text{forward swap} \\ &= 7.5 + 0.06028535 \\ &= 7.56028535\end{aligned}$$

4.4 OTHER FOREX FORWARDS

The following other forex forwards can be found in the forex market:

- *Forward forwards*: A swap deal between two forward dates, settlement takes place on second forward date.
- *A foreign exchange agreement*: A forward-forward, but settlement takes place on the first settlement date.

- *Exchange rate agreement*: The same as foreign exchange agreement but account differently for spot rate.
- *Time options*: The same as outright forward but client has the option to settle at any time within a specified period. This is suitable for a client that wants to hedge but not sure exactly when forex is required.

Both exchange rate agreement and foreign exchange agreements are referred to as synthetic agreements for forward exchange

4.5 FUTURES CONTRACTS

Futures contracts are like forward contracts except they are traded on an exchange, have a standard quantity of foreign currency, have standardised delivery rules and dates and their performance is guaranteed by the exchange's clearing house.

4.6 OPTIONS

A call option gives the buyer of the option the right to buy a certain amount of currency at a specified exchange rate on or before a designated date. A put option gives the buyer of the option the right to sell a certain amount of currency at a specified exchange rate on or before a designated date. Options can be traded on-exchange or over-the-counter.

There exists a market in retail options on foreign currencies - called currency reference warrants.

CRWs are of the European variety, are available as call and put warrants, are listed on the JSE, and are cash settled.

4.7 CURRENCY SWAP

A currency swap in its simplest form involves the exchange of principal and interest payments in one currency for principal and interest payments in another currency.

The amounts involved are usually of equal magnitude and they are exchanged with interest at the beginning and the end of the life of the swap.

Currency swaps are traded over-the-counter and are closely related to interest rate swaps.

Unlike interest rate swaps, currency swaps usually involve the exchange of the principal.

The currency swap in its simplest form involves three distinct sets of cash flows:

- The initial exchange of principals on commencement of the swap.
- The interest payments made by one counterparty to the other during the tenor of the swap.
- The final re-exchange of principals on termination of the swap. Both the initial and the re-exchange of principals take place at the spot exchange rate prevailing on the contract date.

4.7.1 Hedging exchange rate risk with a currency swap

One important use for currency swaps is to hedge exchange rate risk. In South Africa currency swaps are often used to reduce the currency risk of cash flows between local companies and off-shore parent companies. The following example will clarify this principle.

Example: Hedging exchange rate risk with a simple currency swap.

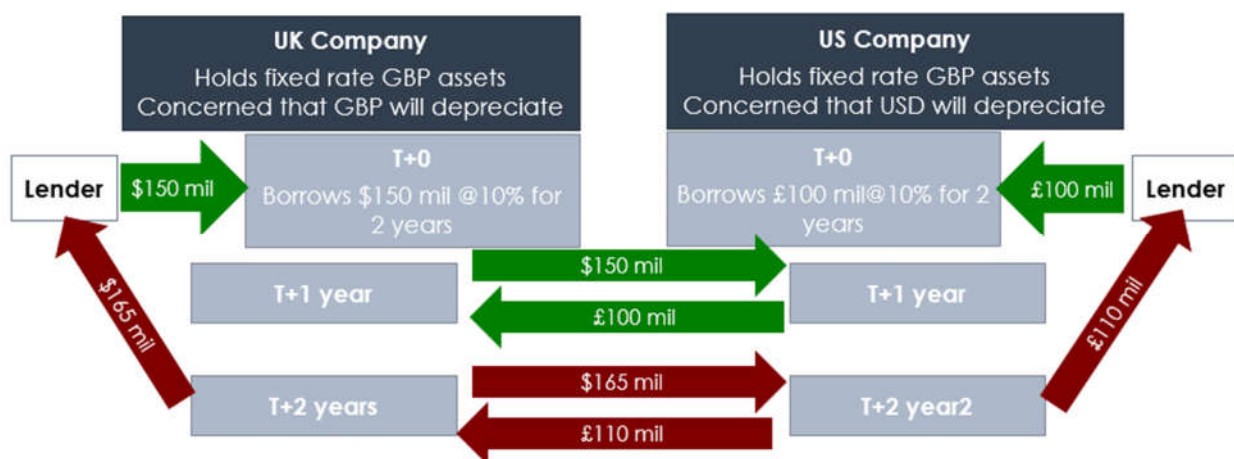
A U.K. company has all its assets in GBP but has a liability USD150 million in the form of 2-year 10% p.a. fixed USD denominated bond issues with a total value of GBP100 million.

In a similar fashion, a U.S. company has all its assets in USD but has a liability of GBP100 million in the form of 2-year 10% p.a. fixed GBP denominated bond issues with the value of USD150 million.

After a year, the U.K. company becomes concerned that the GBP will depreciate in relation to the USD and that the debt will become more expensive in the future. At the same time, the U.S. company becomes concerned that the USD is about to depreciate in relation to the GBP and that the debt will become more expensive in the future.

A dealer spots this opposing currency risk condition and proposes a swap deal. The deal is concluded at the prevailing exchange rate of GBP/USD 1.5000. The dealer's profit is ignored for sake of simplicity. The currency swap is illustrated in the figure following.

Figure 4.3: Example of a currency swap



The swap is done for principal and interest and the relevant amounts change hands at T+1 year. At T+2 (expiry of the swap and the bonds) the amounts plus interest are exchanged again in order for the debtors to repay the creditors the principal plus interest.

If, at expiry of the swap, the exchange rate is GBP/USD 1.4, i.e. the GBP has depreciated, the U.K. company is better off than it would have been in the absence of the swap, with the position of the U.S. company being the converse. In the absence of the swap, the U.K. company would have had to buy USD165 million for GBP117.86 million ($1 / 1.4 \times \text{USD } 150 \text{ million}$), compared with GBP110 million it paid. The U.S. company would have been better off had the swap not been undertaken as it would have bought GBP110 million for USD 154 million ($1.4 \times \text{GBP } 110 \text{ million}$), compared with USD165 million it paid.

4.7.2 Reducing the cost of finance

Currency swaps are used to minimise foreign borrowing costs, by utilising comparative advantage of the counterparties in other currency markets i.e., the one counterparty must have comparatively cheaper access to one currency than it does to another currency. This will be illustrated by way of example.

Example: Reduce the cost of finance with comparative advantage swap

Assume two companies Genco and Samco with borrowing rates as follows:

	USD	ZAR
Genco	5.0%	7.6%
Samco	7.0%	8.0%
Spread	2.0%	0.4%

The data in the suggests that ZAR interest rates are higher than USD interest rates and that Genco is more creditworthy than Samco, as it is offered a more favorable interest rate in both currencies.

However, a comparative advantage situation exists as the spreads between the rates paid by Genco and Samco in the two markets are not the same. Samco pays 2% more than Genco in the USD market and only 0.4% more than Genco in the ZAR market. Therefore, Genco has a comparative advantage in the USD market, whereas Samco has a comparative advantage in the ZAR market. Suppose that Genco wants to borrow ZAR8 million and Samco wants to borrow USD1 million with a current exchange rate of USD/ZAR 8.000. This creates a perfect situation for a currency swap. Both companies borrow in the market where they have a comparative advantage. That is, Genco borrows USD and Samco borrows ZAR. They then use a currency swap to transform Genco's loan into a ZAR loan and Samco's loan into a USD loan.

The USD spread between the companies is 2% and the ZAR spread between the companies is 0.4%. Therefore, the total gain to all parties should be 1.6% per annum.

A swap dealer arranges the swap as follows:

- Genco borrows USD at 5.0% p.a., and Samco borrows ZAR at 8.0% p.a.
- Genco and Samco swap USD for ZAR. Thus, Genco holds ZAR8 million and Samco holds USD1 million.
- Genco pays ZAR interest rate of 6.9% p.a. Thus, Genco is 0.7% p.a. better off than it would be if it went directly to the ZAR market.
- Samco pays USD interest rate of 6.3% p.a. Thus, Samco is 0.7% p.a. better off than it would be if it went directly to the USD market.

The dealer gains 1.3% p.a. on its USD cash flows as the dealer receives 6.3% p.a. interest from Samco, but the USD Genco loan of 5.0% p.a. needs to be serviced ($6.3\% - 5.0\% = 1.3\%$).

However, the dealer loses 1.1% p.a. on its ZAR cash flows as the dealer receives 6.9% p.a. interest from Genco, but the ZAR Samco loan of 8.0% p.a. needs to be serviced ($6.9\% - 8.0\% = -1.1\%$).

If we ignore the difference between the two currencies, the dealer makes a gain of 0.2% p.a. As predicted, the total gain to all parties is 1.6% p.a.

4.7.3 Variations on the theme

The following is a list of the two most basic variations:

- *Cross currency swap*: It involves the exchange of a floating rate in one currency for a fixed rate in another currency. This is essentially a hybrid of the currency swap and the plain vanilla interest rate swap.
- *Differential swap*: Involves the exchange of a floating rate in the domestic currency for a floating rate in a foreign currency. Both payments are referenced against a domestic notional amount.

4.8 FOREIGN CURRENCY DENOMINATED INVESTMENT ASSETS

One could also see foreign currency denominated equities, bonds, cash and property as alternative asset classes that could be considered (including in a portfolio) from a diversification standpoint when advising retail and institutional clients.

Foreign currency denominated equities, bonds and property will have a similar risk profile dynamic in relation to each other as asset classes.

4.9 FOREIGN CURRENCY DEPOSIT ACCOUNT

A foreign currency deposit account is a locally held account that can be used to invest funds in a range of foreign currencies. The main currencies are the United States Dollar (USD), the British Pound (GBP) and the Euro (EUR).

This type of investment is used by investors who want to save in order to purchase overseas products and services at a later stage (for example, an overseas holiday), but do not want to be exposed to foreign currency fluctuation risk.

The following article provides detail on foreign currency accounts that are available from the major South African banks:

<https://www.businesslive.co.za/bt/money/2017-12-03-banking-on-a-foreign-currency-account/>

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