



INSETA Provider Number: 130228

Class of Business Training

Module 3 (7) : Financial Securities & Instruments

Class 7: Investments

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© 2019

Version: March 2019

INTRODUCTION

This module is the final module in order to be certified for COB: Class 7 - Investments

It is a prerequisite to complete and pass the following COB modules before this course can be undertaken.

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

Table of contents

TOPIC 1 Introduction	4
TOPIC 2 Equity securities	5
TOPIC 3 Bond and long-term securities	24
TOPIC 4 Money market securities	38
TOPIC 5 Derivative instruments	52
TOPIC 6 Collective investment schemes	91
TOPIC 7 Retail pension benefits	132

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TOPIC 1 INTRODUCTION

In this guide we consider the securities and instruments classified under Class of Business 7: Investment. These are considered in the topics following and are as follows:

- Equity securities
- Bonds and long-term securities
- Money market securities
- Derivative instruments
- Collective investment schemes
- Retail pension benefits

TOPIC 2 EQUITY SECURITIES

LEARNING OUTCOMES

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

- Explain the general characteristics, terms and features of financial products in the class of business and any specialist characteristics, terms and features in respect of equity instruments.
- Explain the typical fee structures, charges and other costs associated with equity instruments.
- Explain the general risks associated with investing in, purchasing or transacting in equity instruments.
- Discuss the investment and risk principles, options and strategies in respect of equity instruments.
- Name the typical role-players or market participants in the equity market
- Explain the impact of applicable legislation, including taxation laws, with regard to equity instruments.

2.1 THE EQUITY MARKET DEFINED

The equity market together with the bond (and other long-term debt) market comprise the capital market. Capital markets are markets in which institutions, corporations, companies and governments raise long-term funds to finance capital investments and expansion projects.

The equity market consists of the mechanisms and conventions that exist for the issuing of, investing in, and trading of equity.

Equity represents ownership in a business or company. Shareholders or shareowners own the company through the purchase of shares in the company. A share is one of many equal portions of the capital of a company and gives the owner rights in respect of the company. A shareholder has the right to:

- Share in the profits of the company.
- Share in the assets of the company if it goes into liquidation.
- Appoint directors of the company.
- Vote at shareholders meeting.

2.1.1 Characteristics of the market

Generally, the equity market is synonymous with the stock exchange. A stock exchange is defined as a place – physical or virtual – where buyers and sellers (the users or members of the exchange) can meet and trade under rules that are mandated by a regulator such as the Financial Services Board in South Africa.

Most industrialised nations have at least one major stock exchange.

There are two major sub-divisions of a stock market: the primary market and the secondary market. The primary market is where new share issues are sold while secondary markets are where previously issued shares are bought and sold.

There are two types of new share issues:

- *Seasoned issues*: The issuance of shares for companies that already have publicly traded shares.
- *Initial public offerings (IPOs)*: The issuance of shares for companies wishing to sell shares to the public for the first time. IPOs are usually underwritten by investment banks that acquire the issue from the company and then on-sell it to the public.

Secondary equity markets can either be stock exchanges or over-the-counter markets. Only qualified shares can be traded on stock exchanges and only by members of the exchange.

2.1.2 Johannesburg Stock Exchange

The JSE is an exchange licensed in terms of the Securities Services Act. It regulates the trading, clearing and settlement of inter alia equities, warrants and Krugerrand coins. The JSE is governed externally by SSA, which is administered by the Financial Services Board (FSB). The exchange is governed internally by its own rules and directives, which must be approved by the FSB.

While the JSE was established in 1887 to enable new mines and their financiers to raise funds for the development of the mining industry, most of the companies currently listed are non-mining organisations.

The primary functions of the exchange are:

- To generate risk capital i.e., provide a means for companies to issue new shares to raise primary capital.
- To provide an orderly market for trading in shares that have already been issued.

The JSE operates four boards or markets:

- The Main Board, which includes an Africa Board. The Africa Board, which is part of the JSE Main Board allows a company domiciled in Africa, or domiciled elsewhere in the world, but with most of its activities taking place on the African continent, to maintain its listing on its home exchange and obtain a secondary listing on the JSE
- The Venture Capital Market (VCM)
- The Development Capital Market (DCM)
- AltX is an alternative exchange running parallel to the Main Board. The primary purpose of the exchange is to facilitate capital raising for the business expansion and development of small to medium and growing companies.

The Venture Capital Market (VCM) and Development Capital Market (DCM) were previously alternative markets to the Main Board. This has changed. Although VCM and DCM listings continue to exist, the boards are not open for new listings.

The JSE operates an order-driven, central order book trading system with opening, intra-day and closing auctions.

The JSE operates broker deal accounting system (BDA) that its members are obliged to use. The system facilitates trade confirmation, the clearing and settlement of trades between members and their clients, back office accounting, drawing up financial statements and compiling client portfolio statements.

2.1.3 Strate

Strate Ltd is the licensed Central Securities Depository (CSD) for the electronic settlement of financial instruments (including equity) in South Africa. As authorised CSD, Strate provides clearing, settlement and custody or depository services for financial instruments.

Strate's underlying system (comprising the South African Financial Instruments Real-time Electronic Settlement System (SAFIRES) and its front-end system SAFE (SAFIRES Front End)) is an electronic clearing, settlement and custody system that provides secure and efficient settlement of financial instruments:

- *Electronic custody of securities:* Custody is the safekeeping and administration of shares on behalf of others. Key to custody services is the depository, which is an entity with the primary role of recording shares either physically or electronically and keeping records of the ownership of these shares. In South Africa shares are dematerialised i.e., shares are issued and traded without physical certificates, where ownership of shares exists only as an electronic accounting record in a register. Shares listed on the JSE can only be bought and sold if they have been dematerialised in the Strate system.

- *Clearing*: Clearing is the process of transmitting, reconciling and, in some cases, confirming payment orders or shares transfer instructions prior to settlement, and the establishment of final positions for settlement. Sometimes the term is used (imprecisely) to include settlement.
- *Settlement*: The completion of a share buy-and-sell transaction, where the seller transfers shares to the buyer and the buyer transfers money to the seller. Settlement can be rolling settlement, which is a procedure in which settlement takes place a given number of business days after the date of the trade.

The Strate system operates through eleven Central Securities Depository Participants (CSDPs). They are regulated by Strate.

Their functions are to hold in custody and administer securities and interest in securities records including to collate electronically in sub-registers the shareholding records for each listed company.

Participants are required to balance and reconcile their registers daily with the records in SAFIRES, where the total balance of all dematerialised shares and other securities are recorded. Clients and brokers can only interact with Strate via a Participant.

To qualify to be a Participant, entry criteria such as financial soundness set out by Strate and approved by the Financial Services Board must be complied with.

Under the Strate system there are two types of *clients*:

- *Controlled broker clients*: These clients elect to keep their shares and cash in the custody of their broker and, therefore, indirectly in the custody of the broker's chosen CSDP. Because CSDPs are the only market players who liaise directly with Strate, all brokers must have accounts with CSDPs and communicate electronically with them using the international network called SWIFT (Society for Worldwide Inter-Bank Financial Telecommunications). Controlled clients deal exclusively with their brokers and their share statements come from their brokers.
- *Non-controlled broker clients*: These clients appoint their own CSDP to act on their behalf. The investors open accounts with their selected CSDP and deal with their brokers only when they want to trade when they provide their brokers with the details of their share accounts at the CSDP. Non-controlled clients receive share statements directly from their CSDP.

Strate clears and settles both on-market and off-market trades.

Off-market trades are reported to the CSD by the CSDPs of the buyers and sellers.

There are two types of on-market transactions: broker-to-broker trades and broker-to-client trades. Once matched in the central order book, broker-to-broker trades are passed from the JSE's trading system to the CSD. Broker-to-client trades are passed from the BDA system to the CSD.

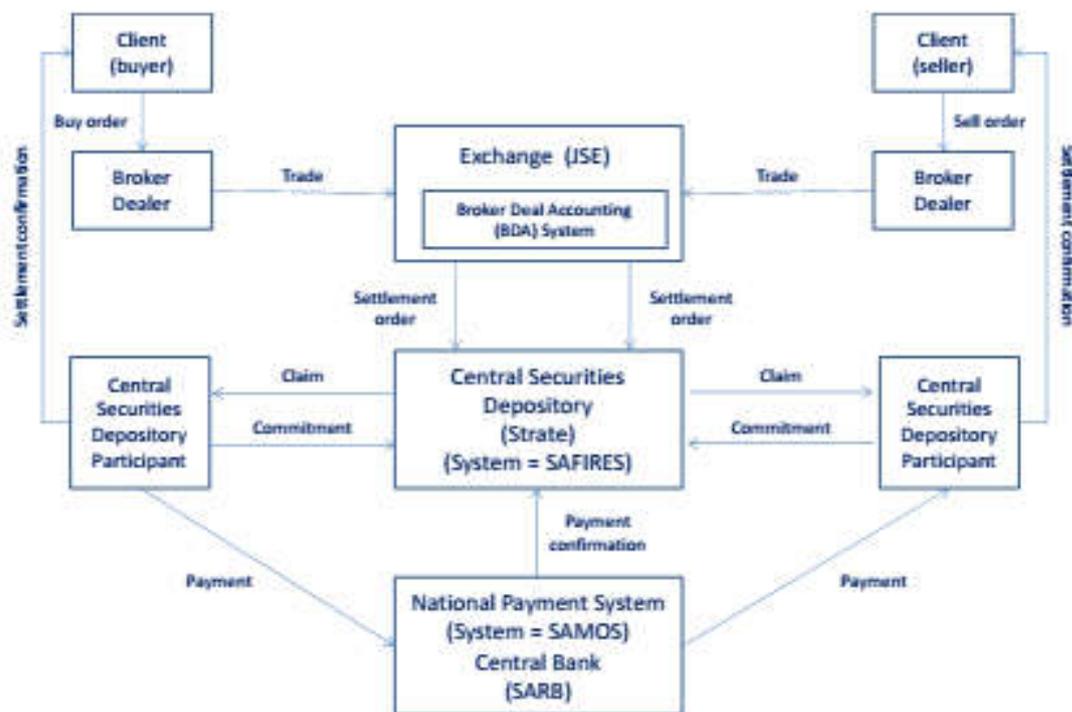
The clearing and settlement process are illustrated in figure 2.1.

Key to the clearing process is the clearinghouse or central clearing counterparty (CCP). A clearinghouse interposes itself between parties to securities transactions, becoming the buyer to the seller and the seller to the buyer.

Apart from being the CSD for both listed equity securities and bonds and some unlisted money market securities, Strate also is a licensed clearinghouse for some bond trading. Safcom, a wholly owned subsidiary of the JSE, is a licensed clearinghouse for derivatives listed on the JSE.

While the JSE is not licensed as a clearinghouse, it performs a comparable function by acting as guarantor of all trading on the equity market. The JSE does not guarantee off-market transactions.

Figure 2.1: The clearing and settlement process



In South Africa settlement occurs on a rolling basis in terms of which listed equities are settled in 5 business days after trade date, bonds in 3 days and money market instruments on trade date.

On settlement date Strate's settlement system SAFIRES confirms the availability of securities and sends a request for the transfer of cash to the SARB, which facilitates the movement of cash between clearing banks through South African Multiple Option Settlement System (SAMOS). Cash transactions are netted so a participant may be a net payer or receiver of cash from SAMOS on a settlement day. There are separate settlements for the equity market, bond market and money market.

Once the availability of cash is confirmed and transferred between SARB clearing bank accounts, Strate will transfer the securities between participants. Participants are advised of a successful settlement and the JSE reflects the corresponding client entries in its systems. The participants update their sub-registers and nominee registers and the brokers update their nominee registers.

There are two broad models of electronic settlement: immobilisation and dematerialisation. Under immobilisation securities in physical form (called scrip) are immobilised (they do not move) and are held by a central securities depository such as Strate in paper or electronic form to facilitate subsequent book-entry transfers of ownership. However, certificates or documents of title evidencing ownership of immobilised scrip can exist outside the central securities depository because participation in the immobilisation process is usually voluntary.

Dematerialisation involves dispensing with paper-based instruments and certificates altogether by replacing physical certificates and certified deeds indicating ownership of securities for an electronic record of ownership of securities.

Dematerialisation mitigates the risks associated with scrip forgery, scrip counterfeiting and loss of scrip due to fire, theft or mutilation. It allows for quick and efficient settlement by removing the need for paperwork and permitting the synchronisation of delivery of securities with payment of the corresponding cash amount; called delivery versus payment (DvP). This rapid and proficient transfer of ownership reduces cost and risk for all market participants including issuers and investors.

2.2 EQUITY MARKET INSTRUMENTS

2.2.1 Ordinary shares

The most important characteristics of ordinary shares are the following:

- *Perpetual claim:* Ordinary shares have no maturity date. Individual shareholders can liquidate their investments in the shares of a company only by selling them to another investor.

- *Residual claim*: Ordinary shareholders have a claim on the income and net assets of the company after obligations to creditors, bondholders and preferred shareholders have been met. If the company is profitable this could be substantial - other providers of capital generally receive a fixed amount. The residual income of the company may either go to retained earnings or ordinary dividends.
- *Preemptive right*: Shareholders have the right to first option to buy new shares. Thus, their voting rights and claim to earnings cannot be diluted without their consent. For example, Rex company owns 10% or 100 of the 1 000 shares of Blob company. If Blob decides to issue an additional 100 shares Rex has the right to purchase 10% or 10 of the new shares issued to maintain its 10% interest in Blob.
- *Limited liability*: The most ordinary shareholders can lose if a company is wound up is the amount of their investment in the company.

Returns to ordinary shareholders consist of the following:

- *Dividends*: Dividends are a portion of the company's profits. They are not guaranteed until declared by the board of directors.
- *Capital gains (losses)*. These arise through changes in the price of a company's shares. Over time, companies hope to grow and profits with associated increases in the value of their shares and capital gains to shareholders. The value of shares in companies that fail / become insolvent will be worth less /worthless and shareholders will suffer a capital loss.

A company's authorised share capital is the number of ordinary shares that the directors of the company are authorised to issue. When the shares are sold to investors they become issued i.e., issued share capital.

The risk ordinary shares have for investors are:

- The value of the shareholding may fluctuate significantly over the short term as share prices are influenced by many factors other than those relating to the company's specific performance
- Ordinary shareholders are the last to recover any value on their shares should the company be wound up.

2.2.2 Preference shares

Preference shares are hybrid securities in that they have features of both ordinary shares and debt. Like debt, preference shares pay their holders a fixed amount (dividend) per year, have no voting rights and in the event of non-payment of dividends, may have the cumulative dividend feature that requires all dividends to be paid before any payment to common shareholders. Like ordinary shares they are perpetual claims and subordinate to bonds in terms of seniority. However, preference shares carry preferential rights over ordinary shares in terms of entitlement to receipt of dividends as well as repayment of capital in the event of the company being wound up.

Preference shares offer holders a fixed- or variable-rate dividend each year:

- *Fixed rate dividend:* The preference share pays a fixed rate and the dividend remains the same regardless of changes in market interest rates. For example, if the company has issued 40 000 preference shares at a par value of R20 each and dividend of 7% p.a., the preference share dividend paid by the company every year will be R56 000 i.e., $40\,000 \times R20 \times 7\%$. This is not necessarily guaranteed (see non-cumulative preference shares).
- *Variable-rate dividend:* The dividend paid varies with a benchmark interest rate according to a pre-defined formula. The dividend will move in line with changes in interest rates i.e., if interest rates increase, the dividend will also increase, if interest rates fall, the dividend will decrease. Corporates especially banks are issuing variable rate preference shares linked to the daily prime interest rate. For example, if the pre-defined formula is 75% of prime and the prime rate is 10%, the dividend rate will be 7.5% (i.e., $10\% \times 75\%$). Once again, the dividend is not necessarily guaranteed (see non-cumulative preference shares).

There are many different types of preference shares:

- *Cumulative:* Dividend is cumulated if the company does not earn sufficient profit to pay the dividend i.e., if dividend is not paid in one year it will be carried forward to successive years.
- *Non-cumulative:* If the company is unable to pay the dividend on preference shares because of insufficient profits, the dividend is not accumulated. Preference shares are cumulative unless expressly stated otherwise.
- *Participating:* Participating preference shares, in addition to their fixed dividend, share in the profits of a company at a certain rate.
- *Convertible:* Apart from earning a fixed dividend, convertible preference shares can be converted into ordinary shares on specified terms.

- *Redeemable*: Can be redeemed at the option of the company either at a fixed rate on a specified date or over a certain period.

2.2.3 Depository receipts

Depository receipts are certificates representing ownership in the ordinary shares of a company but that are traded and marketed outside of the company's home country (i.e., in a host country).

Depository receipts are quoted in the host country's currency and treated in the same way as host country shares for purposes of trading, clearance, settlement, transfer, and ownership. Depository receipts increase the company's visibility in markets outside its home country and allow the company access to capital in other countries. Investors in depository receipts will enjoy the same benefits of direct ownership in the underlying shares i.e., the investor will receive dividends and will have voting rights.

Types of depository receipts are American Depository Receipts (ADRs) and Global Depository Receipts (GDRs).

ADRs are USD-denominated depository receipts representing ownership in non-US shares issued by a US depository bank. The non-US shares are purchased by a broker on the company's home stock exchange and held by the US depository bank's local custodian. The US depository bank then issues ADRs, which are sold to US investors. The depository bank collects the dividends and makes payments to the holders of the ADRs. Prices and dividends are in US dollars. ADRs are available to US investors over the counter or on a stock exchange such as the New York Stock Exchange.

GDRs are depository receipts available in one or more markets outside the company's home country. The advantage of the GDRs, compared to the ADRs, is that they allow the issuing company to raise capital in more than one market. GDRs are typically denominated in USD but can be denominated in Euro or British sterling. GDRs are commonly listed on European stock exchanges such as the London Stock Exchange (LSE).

South African ADRs traded on the NYSE include AngloGold Ashanti, GoldFields.

2.2.4 Exchange traded funds

There are two basic structures for exchange-traded funds (ETFs): physical or synthetic.

A physical equity ETF, also called a vanilla ETF, is a traded financial instrument representing ownership in an underlying portfolio of shares that tracks an index like the JSE/FTSE Top 40 Index. Investors can buy and sell ETFs on an exchange in the same way they would any other listed shares. The prices of ETFs fluctuate at once in response to changes in their underlying portfolios thereby offering the same intra-day liquidity as other shares traded on exchange. ETFs give investors exposure to a diversified basket of shares.

Synthetic ETFs attempt to obtain the return on an index by using over-the-counter derivatives such as total return swaps. As such synthetic ETFs reproduce the index synthetically rather than by replicating the index physically by owning the physical assets. Synthetic replication can be cost effective, especially if the index is illiquid. There are many variants of synthetic ETFs.

- Leverage ETFs offer multiples of for example 2 or 3 times the return of the index.
- Inverse ETFs return the inverse performance of the index i.e., a positive return when the return on the index is negative.

Physical ETFs are the dominant form of ETF, especially in the US and are mainly provided by large independent asset managers. The appeal of ETFs to investors is clear-cut: access to a low-cost diversified portfolio that can be traded intra-day. However, ETFs have become increasingly complex and opaque both in the derivatives-based structures they employ and the strategies they use to generate returns.

This has attracted the attention of financial market and banking regulatory and supervisory authorities and raised concerns about the risks, particularly structured ETFs, pose to financial stability and investor protection. This is especially true when parallels are drawn between recent developments in the ETF markets and those in the securitisation markets before the 2007/08 financial crisis. Revision of the current regulatory regime regarding ETFs may be appropriate given the growing complexity of a market.

2.3 EQUITY MARKET PARTICIPANTS

The major participants in the equity market are considered in the subsections following.

2.3.1 Issuers: Limited public companies

Limited public companies are the issuers of shares on regulated stock exchanges.

2.3.2 Investment banks

Investment banks assist companies to finance their activities by issuing securities – shares or debt.

Essentially, they purchase new issues of shares and place them in smaller parcels among investors. They also facilitate mergers of companies and the acquisition of one firm by another.

2.3.3 Venture capitalists

Venture capitalists invest medium and long-term funds in new (start-up) and young firms. Venture capital is risk capital. Venture capital firms also provide advice in running the business to the generally inexperienced management of the firms they invest in.

2.3.4 Investors

There are several types of investors:

- *Individual investors* usually hold a small personal investment in equities. However, they do have several indirect investments in equity via pension and provident funds, medical aid schemes, insurance policies, assurance policies and unit trusts.
- *Companies* could own more than 50% of a company's shares giving it controlling voting powers. In this instance, the company holding the share is referred to as a holding company and the company in which the holding company has the share is known as a subsidiary of the holding company.
- *Asset or investment management firms* advise and administer pension and mutual funds on behalf of the funds stakeholders: individuals, firms and governments.
- *Insurance companies* invest the premiums they receive in shares, bonds and property. The premiums are received in terms of insurance policies covering specific events such as death, accident, and fire.
- *Pension and retirement funds* invest the contributions of employees and employers in assets such as shares.
- *Collective investment schemes* are portfolios of assets such as shares, bonds, money market instruments bought in the name of a group of investors. The schemes are generally managed by investment companies.

In South Africa the more-liquid and better-rated shares are held almost exclusively by institutions such as pension funds and insurance companies – individuals' holdings are small.

2.3.5 Brokers and broker dealers

Brokers (or agents) act as agents or conduits between lenders and borrowers or buyers and sellers in return for a commission. They try to match the orders of buyers and sellers without taking ownership of the securities.

Dealers stand ready and willing to buy a security for their own account (at its bid price) or sell from their own account (at its offer price). A dealer therefore acts as a principal (buyer or seller) in a securities transaction. As principals, dealers are market makers in securities, meaning they must quote both a bid and an offer price to the market always. This implies that they profit from the spread between bid and offer prices as well as from changes in market prices. Market makers adjust their bid or offer prices depending upon positions that they hold and/or upon their outlook for changes in prices. Dealers who take positions (normally for their own account) on a very short-term basis, such as intraday, are often referred to as jobbers. Often brokers also act as dealers and/or jobbers.

2.4 ROLE OF EQUITIES IN AN INVESTMENT PORTFOLIO

Equities (ordinary shares) are essential to any medium- to long-term (5–10 years) and long-term (10 years and longer) investment plan. The reasons are quite clear; equity investments have, over time (since 1910), been the investment instrument which has offered the best return.

In addition to historically having offered the best returns, equities also fulfil the following roles in an investment portfolio:

- Equity investments are inflation-beating investments over the medium to long term and this makes them indispensable in an investment portfolio.
- The really good exponential growth that equity investments frequently deliver during the up-cycles in the equity market is often vital to the realisation of investment goals.

Equity markets can be very volatile in the short term. Investments in shares are therefore not suitable for an investor with a short investment horizon, as the investor could end up in a position where he needs to liquidate his investment at a time of poor market performance.

There are three main methods for investing in shares, namely:

- The investor can manage his own portfolio or can have his share portfolio managed by a stockbroker, bank or other portfolio manager.
- The investor can purchase units in a unit trust and thereby acquire a stake in the portfolio managed by the unit trust management company.

The investor can buy a pure endowment policy linked to an equity portfolio, thereby acquiring an interest in equities managed by the assurance company.

An investor with substantial funds may decide to invest in his own equity portfolio through the medium of a stockbroker. Unless the investor has a fairly substantial sum to invest, however, he/she should not attempt to establish his own portfolio in this manner. Three of the main reasons for not managing one's own portfolio with a small investment amount are as follows:

- Most investors do not have sufficient funds to ensure a diversified investment portfolio when investing in individual shares.
- Most investors do not have sufficient time to manage a direct investment in the equity market.
- Most investors do not have even remotely enough expertise to manage a direct investment in the equity market.

2.5 TYPICAL FEES INVOLVED WITH EQUITY INVESTMENTS

The services of a broker (authorised user), who is registered with the JSE, are required in order to trade shares. Brokers charge a commission or brokerage fee, calculated as a percentage of the value of the transaction, for facilitating the trade. The fee will vary between brokers and is usually lower for institutional clients who trade in larger volumes. Some brokers may charge a monthly account maintenance fee for keeping an investor's stock-broking account.

The following fees, calculated on the value of the transaction, are payable in addition to the broker's fee:

- STT (Securities Transfer Tax) of 0.25% on the value of the share purchased.
- STRATE settlement costs of 0.005787% (excluding VAT). The fee varies between a minimum of R10.19 and a maximum of R73.49.
- Investor Protection Levy of 0.0002% (excluding VAT).

An investor may decide to appoint a discretionary manager to manage his share portfolio, or he may decide to invest in a collective investment scheme. In this case, the manager of the share portfolio or collective investment scheme will charge a fee based on the value of the portfolio.

2.6 TAX CONSIDERATIONS

Dividends tax is applicable when a South African tax resident company or a foreign company, whose shares are listed on a South African exchange, pay dividends.

Dividends are taxed in the form of a withholding tax. The company declaring the dividend pays the tax before distributing the dividends to shareholders. Shareholders must declare their dividend earnings together with other forms of income and the tax authorities will then credit the taxpayer, with the tax withheld at the source.

Capital gains and losses are triggered when shares are sold and will be subject to capital gains tax (CGT). The inclusion rate (the proportion of capital gains which is included for taxable income) differs amongst individuals, companies and trusts. Individuals are exempt from paying CGT on the first R40 000 of capital gains per year.

When shares are actively traded for profit, any resulting profits could be treated as taxable income and not CGT, resulting in a higher effective tax rate.

Certain entities are exempt from dividends tax, including the following:

- South African resident companies
- Pension funds, provident funds and medical schemes
- Portfolios of collective investment schemes in securities

For a complete list refer to: <http://www.sars.gov.za/FAQs/Pages/30.aspx>.

2.7 PRICING OF EQUITY INSTRUMENTS

If we can calculate the fair value (intrinsic) of a share, we can determine if the share is currently undervalued or overvalued. Undervalued shares are usually desirable as it is expected that the market price in future will reflect the fair value price i.e. the price of the share is expected to increase over time.

However, calculating the fair value of a share is not an exact science and several theories exist. However, the subsections following considered the following five traditional methods of determining the value of a share, however there is many other theories on the behaviour and pricing of shares that will not be considered.

- Asset backing method
- Yield basis method
- Fair value method
- Return on capital employed method
- Price-earnings ratio method

2.7.1 Asset-backing method

Since the valuation is made on the basis of the assets of the company, it is known as Asset-Basis or Asset-Backing Method. At the same time, the shares are valued on the basis of real internal value of the assets of the company and that is why the method is also termed Intrinsic Value Method or Real Value Basis Method.

The method can either be made by an on-going concern basis or a break-up value basis.

With the on-going concern basis, the utility of the assets is to be considered for the purpose of arriving at the value of the assets.

With the break-up value basis, the realizable value of the assets is to be taken.

Under this method, value of the net assets of the company is to be determined first.

The following steps should carefully be followed while calculating Net Assets or the Funds Available for Equity Shareholders:

- Ascertain the total market value of fixed assets and current assets.
- Compute the value of goodwill (as per the required method).
- Ascertain the total market value of non-trading assets (like investment) which are to be added.
- All fictitious assets (Preliminary Expenses, Discount on issue of Shares/Debentures, Debit-Balance of P&L A/c etc.) must be excluded.
- Deduct the total amount of Current Liabilities, Amount of Debentures with arrear interest and Preference Share Capital with arrear dividend.
- The balance left is called the Net Assets or Funds Available for Equity Shareholders.
- This is divided by the number of equity shares to arrive at the intrinsic value of the share.

This is detailed in the table following:

Calculation of Net Assets

Fixed Assets (Market Value)	XX
+ Investments (Market Value)	XX
+ Current Assets (Market Value)	XX
+ Goodwill (Market Value)	XX
- Current liabilities	XX
- Debentures with arrear interest	XX
- Preference share capital (with arrear dividend)	XX
= Net Assets/Funds available for equity shareholders	XXXXX

$$\text{Intrinsic value of share} = \frac{\text{Funds available for equity shareholders}}{\text{Number of equity shares}}$$

Alternatively, the net assets can be calculated as follows:

$$\text{Net assets} = \text{Share capital} + \text{Reserves and surplus revaluation} - \text{loss on revaluation}$$

I) Applicability of method

The method is particularly applicable when the shares are valued at the time of Amalgamation, Absorption and Liquidation of companies and also when shares are acquired for control motives.

The method can also be used by investor to determine the value of this shares at the time of purchasing.

2.7.2 Yield-basis method

Yield is the effective rate of return on investments which is invested by the investors. It is always expressed in terms of percentage. Since the valuation of shares is made on the basis of Yield, it is called Yield-Basis Method.

Yield is calculated as follows:

$$\text{Yield} = \frac{\text{Normal profit}}{\text{Capital employed}} \times 100$$

Under the yield-basis method, valuation of shares is made on either a profit basis or a dividend basis. The subsections following consider both of these basis.

I) Profit basis

Under this method, at first, profit should be ascertained on the basis of past average profit; thereafter, capitalized value of profit is to be determined on the basis of normal rate of return, and, the same (capitalized value of profit) is divided by the number of shares in order to find the intrinsic value.

This is done as follows:

$$\text{Capitalised value of profit} = \frac{\text{Profit}}{\text{Normal rate of return}} \times 100$$

$$\text{Intrinsic value} = \frac{\text{Capitalised value of profit}}{\text{Number of shares}}$$

II) Dividend basis

Valuation of shares under the dividend basis may be made either on the basis of total amount of dividend or on the basis of rate of dividend

On the basis of total amount of dividend

$$\text{Capitalised value of profit} = \frac{\text{Total amount of dividend}}{\text{Normal rate of return (yield)}} \times 100$$

$$= \text{Intrinsic value} = \frac{\text{Capitalised value of profit}}{\text{Number of equity shares}}$$

On the basis of rate of dividend

$$= \text{Intrinsic value} = \frac{\text{Rate of dividend}}{\text{Normal rate of return}} \times \text{Paid - up value of share}$$

The rate of dividend can be calculated as follows:

$$\text{Rate of dividend} = \frac{\text{Profit}}{\text{Equity share capital (paid - up)}} \times 100$$

III) Applicability of method

Whether Profit Basis or Dividend Basis method is followed for ascertaining the value of shares depends on the shares that are held by the respective shareholders. In other words, the shareholders holding minimum number of shares (i.e., minority holding) may determine the value of his shares on dividend basis since he has to satisfy himself having the rate of dividend which is recommended by the Board of Directors, i.e., he has no such power to control the affairs of the company.

On the contrary, the shareholders holding maximum number of shares (i.e., majority holding) has got more controlling rights over the affairs of the company including the recommendation for the rate of dividend among others. Under the circumstances, valuation of shares should be made on profit basis. In short, Profit Basis should be followed in the case of Majority Holding, and Dividend Basis should be followed in the case of Minority Holding.

2.7.3 Fair value method

There are some accountants who do not prefer to use Intrinsic Value or Yield Value for ascertaining the correct value of shares. They, however, prescribe the Fair Value Method which is the mean of Intrinsic Value Method and Yield Value Method. The same provides a better indication about the value of shares than the earlier two methods.

$$\text{Fair value} = \frac{\text{Intrinsic value} + \text{Yield value}}{2}$$

2.7.4 Return on capital employed method

Under this method, valuation of share is made on the basis of rate of a return (after tax) on capital employed. Rates of return are taken on the basis of predetermined/expected rates of return which an investor may expect on the investments. After ascertaining these expected earnings, we are to determine the capital sum for such a return.

Thus, we are to follow the following process:

- Ascertain the expected (maintainable) profit (after adjustments, if any).
- Ascertain the normal rate of return on capital employed for a similar business.
- On the basis of expected rate of return, capitalize the (maintainable) profit.

Symbolically this can be depicted as follows:

$$\text{Intrinsic value} = \frac{\text{Rate of return on capital employed}}{\text{Market rates of expected return}} \times \text{Paid up value of share}$$

2.7.5 Price-earnings ratio method

The price earnings ratio is the ratio which relates to the market price of the share to earning per equity.

The price earning ratio method is applied as follows:

$$\text{Price – earning ratio} = \frac{\text{Market prics of share}}{\text{Earnings per share}}$$

Using PE ration, we can ascertain the value of share as follows:

$$\text{Intrinsic value} = \text{Earning per share} \times \text{PE Ratio}$$

TOPIC 3 BOND AND LONG-TERM SECURITIES

LEARNING OUTCOMES

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

- Explain the general characteristics, terms and features of financial products in the class of business and any specialist characteristics, terms and features in respect of bond and long-term debt instruments.
- Explain the typical fee structures, charges and other costs associated with bond and long-term debt instruments.
- Explain the general risks associated with investing in, purchasing or transacting in bond and long-term debt instruments.
- Discuss the investment and risk principles, options and strategies in respect of bond and long-term debt instruments.
- Name the typical role-players or market participants in the bond and long-term debt market.
- Explain the impact of applicable legislation, including taxation laws, with regard to bond and long-term debt instruments.

3.1 THE BOND MARKET DEFINED

Capital markets are markets in which institutions, corporations, companies and governments raise long-term funds to finance capital investments and expansion projects. The bond and long-term debt market as well as the equity market are capital markets.

Bonds and long-term debt instruments are debt instruments that require the issuer or borrower to repay the bondholder or lender or investor the amount borrowed as well as interest thereon over a specific fixed period.

3.1.1 Characteristics of the market

Bonds and long-term debt instruments are traded on organised exchanges or over-the-counter.

A distinction should be drawn between primary and secondary bond markets. The primary market is where new bond and long-term debt instruments issues are sold.

The secondary market is the market in which previously issued bond and long-term debt instruments are traded. Money market and bond market securities are traded on the JSE's Interest-rate market.

3.1.2 Bond market participants

Most bonds traded in South Africa are issued by the national government. The government issues bonds to fund, together with taxation receipts, its spending policies for welfare, health, education, building works, infrastructure such as roads, railways and ports, defence, police and the legal and regulatory system.

Corporates, both financial and non-financial, are also major issuers of bonds in South Africa. Corporates use corporate bonds to borrow money directly from the public. Corporate bonds differ from government bonds in one important respect – credit risk. Credit risk is a material consideration for investors when buying corporate bonds, although in recent years so too is sovereign risk i.e., the risk of government default.

Investors in the bond and long-term debt market include institutional investors such as insurance companies and pension funds. Institutional investors generally have long-term liabilities such as the provision of members' retirement income and financial protection against death. Consequently, they are long-term investors that pursue income certainty and safety of principal with less need for liquidity. As a result, bonds generally form a substantial part of such portfolios.

3.2 TERMINOLOGY OF BOND INSTRUMENTS

3.2.1 Principal or par value

The principal of a bond is the amount the issuer agrees to repay the bondholder on maturity date. It is also called the nominal, face, maturity, or redemption value.

3.2.2 Coupon and coupon rate

The coupon rate is the rate of interest (usually fixed) that the issuer agrees to pay the bondholder each year. The interest payment is called the coupon. It is calculated by multiplying the principal by the coupon rate. For example, a bond with a 12% coupon rate and a principal of R1 000 will pay an annual coupon of R120 ($R1\ 000 \times 0.12$).

In the United States, United Kingdom, Japan and South Africa it is usual for the issuer to pay the coupon in two semi-annual payments. For bonds issued in the Eurobond market coupon payments are made once a year.

All bonds make periodic coupon payments except zero-coupon bonds. The coupons paid by variable-rate bonds (floating-rate notes) vary according to a specified benchmark such as the effective ruling interest rate on South African treasury bills or JIBAR (Johannesburg Inter-Bank Acceptance Rate).

3.2.3 Term to maturity

The term to maturity of a bond is the number of years over which the issuer has agreed to meet the conditions of the debt. The maturity date (also called redemption date) is the date on which the issuer is due to redeem the bond by paying the principal.

Term to maturity indicates the life of the bond i.e., the period over which the bondholder can expect to receive coupon payments and the number of years before the principal is repaid.

3.2.4 Yield to maturity

Yield to maturity is the rate of return paid on a bond or other fixed income security if the instrument is held until its maturity date. Yield to maturity is based on the coupon rate, term to maturity, and market price. It assumes that coupon interest paid over the life of the bond will be reinvested at the yield to maturity. Quantitatively the yield to maturity of a bond is the single interest rate equating the price of the bond with the cash flows to be received from the bond i.e., it is the bond's internal rate of return.

3.2.5 Market price or yield

The market price or yield is the price or yield needed to persuade investors to invest in a bond. It reflects current market prices or yields on financial instruments of comparable risk at which willing buyers and sellers are prepared to transact.

3.2.6 Price quotations, premiums and discounts

The price of a bond is usually stated as a percentage of its face value (or principal or nominal value). For example, a price of R100% (which is interpreted as 100 rand %) means that the price is 100 percent of the nominal value, that is, you would pay R1 million to buy a bond with a nominal value of R1 million ($100\% \times R1 \text{ million}$). Such a bond is said to be trading at par.

If the price of a bond with a nominal value of R1 million is R98%, the buyer would have to pay R980 000 for the bond ($98\% \times R1 \text{ million}$). Such a bond is trading at a discount to par. On the other hand, if the price of a bond with a nominal value of R1 million is R108%, the amount needed to pay for the bond is R1 080 000 ($108\% \times R1 \text{ million}$). Such a bond is trading at a premium.

3.3 BOND INSTRUMENTS

3.3.1 Plain vanilla bond

A fixed-interest-bearing security sold by the issuer promising to pay the holder interest (called coupons) at future dates (usually every six months) and the nominal (principal/face/par) value of the security at maturity.

Denomination: Issued in multiples of R1 million.

Maturity: Usually the maturity of a bond is between 1 and 30 years.

Quality: Government bonds are essentially risk-free within a country as they constitute evidence of debt of the government. Semi-gilt bonds may have a degree of credit risk. The quality of corporate bonds depends on the issuer.

Issuers: The government, public corporations, local authorities, companies and banks.

Investors: Banks, Insurance companies, hedge funds, mutual funds, trust companies and pension funds.

Advantages to issuers

A bond has the following advantages to the issuer:

- The interest rate of fixed-rate bonds is fixed over the life of the bond.

Disadvantages to issuers

A bond has the following disadvantages to the issuer:

- If market rates fall after the bond has been issued, the issuer may be locked into paying interest rates above market rates.

Advantages to investors

A bond has the following advantages to the investors:

- A large selection of bonds in terms of quality and maturity is available to investors.
- Bonds are a good addition to an investor's portfolio because they are less volatile than equities in the short-to medium-term.
- There is a liquid secondary market.
- The price of a fixed-rate security moves in an inverse relationship to a movement in interest rates. When interest rates fall, the price of the bond rises to match current yields and vice versa. This gives investors an opportunity for capital gains.

Disadvantages to investor

A bond has the following disadvantages to the investor:

- Investors can incur capital losses if interest rates increase.
- Unless the bond is issued by the government, investors are exposed to credit risk.
- Large denominations are unattractive to small investors.

3.3.2 Floating-rate Notes

A Floating-rate Note (FRN) are debt securities of which the coupon is re-fixed periodically (usually six monthly) by reference to some independent pre-determined benchmark interest rate or interest rate index.

In the Euromarkets, this is usually some fixed margin over 6-month LIBOR. In South Africa, securities have been linked to the overdraft rate, 90-day JIBAR and the rate on long-term marketable Eskom bonds.

Floating-rate Notes are also known as variable-rate bonds.

Denomination: Issued in multiples of R1 million.

Maturity: Usually the maturity of a Debenture is between 5 and 30 years.

Quality: Obligation of the issuer

Issuers: The government, public corporations, local authorities, companies and banks.

Investors: Mainly insurance companies, hedge funds, mutual funds and pension funds.

Advantages to issuers

A floating-rate note has the following advantages to the issuer:

- If short-term rates decrease after the Floating-rate Note is issued, the issuer may fund at a rate lower than that of a comparable fixed-rate loan.

Disadvantages to issuers

A floating-rate note has the following disadvantages to the issuer:

- If interest rates increase after Floating-rate Note is issued, the issuer may incur a greater cost in comparison to if a fixed-rate bond has been issued.

Advantages to investors

A floating-rate note has the following advantages to the investors:

- Coupons are adjusted to reflect general movements in interest rates which gives investors protection against significant capital losses in period of interest rate uncertainty.
- The return on floating rate notes are usually linked to short term interest rates, which can be attractive when short-term rates are at historically high levels.

Disadvantages to investor

A floating-rate note has the following disadvantages to the investor:

- Less opportunity for capital gains than with fixed-rate investment.
- When the coupon is determined by reference to short-term interest rates, this may not be at the highest point on the yield curve in which case investors will not maximise return.
- Unless the Floating-rate Note is issued by the government, investors are exposed to credit risk.
- Large denominations are unattractive to small investors.

3.3.3 Zero coupon bonds

Zero-coupon bonds pay no coupons during the tenor of the bond. Instead they are purchased at a discount and repay the bondholder par value on maturity date.

Strips are derived from stripping a fixed rate coupon bond into a series of zero-coupon bonds. The bond is separated into its constituent interest and principal payments, which can be separately held or traded. For example, a 15-year bond paying fixed semi-annual coupons can be stripped into 31 separate zero-coupon bonds (30 coupon payments plus the principal payment).

Denomination: Issued in multiples of R1 million. Zero-coupon bonds derived from a strip may be less than R1 million.

Maturity: Usually the maturity of a Debenture is between 5 and 30 years.

Quality: Obligation of the issuer

Issuers: The government, public corporations, local authorities, companies and banks.

Investors: Mainly insurance companies, hedge funds, mutual funds and pension funds.

Advantages to issuers

A zero-coupon bond has the following advantages to the issuer:

- The interest cost of a zero-coupon bond is fixed over the life of the bond.
- The issuer does not have to make any payments until the bond matures.

Disadvantages to issuers

A zero-coupon bond has the following disadvantages to the issuer:

- If interest rates increase after issuance, the issuer is locked into paying higher rates.

Advantage to investors

A zero-coupon bond has the following advantages to the investors:

- Because there is no coupon to reinvest, a zero-coupon bond does not have reinvestment risk. This is beneficial when interest rates are falling.
- Zero-coupon bonds are more volatile than conventional bonds and are thus an attractive investment when interest rates fall – they can be sold prior to maturity to realise capital gains.

Disadvantages to investor

A zero-coupon bond has the following disadvantages to the investor:

- Tax legislation may negatively impact on the attractiveness of zero-coupon bonds. If interest is taxed on an accrual basis the investor may experience cash outflows in respect of tax payments before the bond matures.
- Because there is no coupon to reinvest, a zero-coupon bond has no reinvestment risk. This is unfavorable when interest rates rise.
- Unless the Zero-coupon bond is issued by the government, investors are exposed to credit risk.

3.3.4 Retail savings bonds

In 2004, securities for the retail savings bond market were introduced. The main objectives of the issues were to create awareness amongst the general public of the importance to save, diversify the financial instruments on offer to the retail market and target a different source of government funding.

The government has on issue two series of RSA retail savings bonds:

- 2-year, 3-year and 5-year fixed-rate retail savings bonds.
- 3-year, 5-year and 10-year inflation-linked retail savings bonds.

In terms of security, retail savings bonds are backed by the full faith of the Government. Retail savings bonds are not tradeable.

Retail savings bonds have a minimum investment limit of R1 000 and maximum investment limit of R5 million.

3.4 MARKETING OF BONDS

Since 1998, the government has appointed banks in the private sector to manage its sales of government bonds. In other words, private banks that have the necessary qualifications have become market-makers of government bonds.

The appointment of market-makers also brought the marketing of government stocks in line with international best practice. This method of selling government stocks is particularly well entrenched in industrial countries.

Another important benefit of the new system is increased transparency. The latter emerges under the new system because, under the old arrangements, the SARB traded government bonds in opaque dealings which left buyers unclear as to whether they were buying new or previously issued bonds.

3.5 RISK AND RETURN CHARACTERISTICS OF BONDS

Debt securities are less risky than equities, as their cash flows are defined contractually. In the event of the liquidation of a company, bondholders have first claim to the assets of the company.

Some of the most notable risks to consider when investing in bonds include interest-rate risk, credit risk and liquidity risk.

Inherently, there is a negative relationship between interest rates and the price or value of fixed-rate debt instruments. An increase in interest rates increases the discount rate that is applied to future cash flows, resulting in a lower present value. Conversely, a decrease in interest rates decreases the applicable discount rate, resulting in a higher present value. Duration is a measure of the approximate sensitivity of a bond's value to rate changes. A longer duration bond will be more sensitive to changes in interest rates than a bond with a shorter duration.

Credit risk relates to the ability of the issuer of a bond to meet its obligations. In a traditional sense, credit risk is defined as the risk that an issuer will fail to satisfy its obligations with regard to the timely payment of interest and repayment of the amount borrowed.

Liquidity risk is the risk that an investor will be forced to sell a bond for less than its true value. This is especially true when an investor needs to liquidate a position in a short time span and where there is limited demand for the particular instrument.

3.6 THE ROLE OF BONDS IN AN INVESTMENT PORTFOLIO

Bonds are usually less risky and less volatile instruments than equities and can be used to provide a measure of 'safety' in an investment portfolio. Furthermore, the returns on bonds and equities tend to be negatively correlated, thereby assisting in reducing portfolio risk through diversification. By implication, bonds can be used to reduce overall portfolio risk for clients who are not able to tolerate the risk associated with full equity exposure.

The expected cash flows on bonds are known in advance. Bonds are therefore best suited to individuals and entities that require a level of capital preservation and need to draw an income from their portfolios. Even though a bond's price will fluctuate in line with interest-rate changes, the principal amount that is paid at maturity remains constant.

Inflation-linked bonds provide a hedge against unexpected changes in inflation and are often used by entities with liabilities that are linked to inflation. An example of this would be defined benefit pension plans, which will have to pay benefits that are linked to inflation.

3.7 TYPICAL FEES INVOLVED WITH FIXED-INCOME INVESTMENTS

The services of a broker, who is registered with the JSE, are required in order to trade listed bonds. Brokers charge a commission or brokerage fee, calculated as x basis point of the YTM of the bond, for facilitating the trade, depending on trading volume. The fee will vary between brokers. In South Africa, government bond trades are typically concluded on screen in clips of R5 000 000, and, as such, institutional investors make up the vast majority of trade volumes.

An investor may decide to appoint a discretionary manager to manage his bond portfolio, or he may decide to invest in a collective investment scheme. In this case, the manager of the bond portfolio or collective investment scheme will charge a fee based on the value of the portfolio.

3.8 TAX CONSIDERATIONS

A capital gain or loss will be realised in the event that a bond is sold prior to maturity. This capital gain or loss will be included in the calculation of capital gains tax (CGT). Furthermore, periodic interest payment will form part of the receiver's income and will be subject to income tax. For the 2019 tax year, individuals younger than 65 will be exempted from paying tax on the first R23 800 of interest received. For individuals who are 65 and older, the amount of interest exempted from income tax increases to R34 500.

3.9 PRICING OF BONDS

3.9.1 Standard price formula

This formula is used to price bonds with more than six months to redemption.

$$\text{All-in price} = V_i^{d1/d2} [1/2c (a_n^i + e) + 100V_i^n]$$

where

d1 = number of days from settlement date to next interest date

d2 = number of days from last to next interest date or from settlement date to next interest date if settlement falls on an interest date

i = yield at which bond trades (percentage)

$V_i = 1 / (1 + i / 200)$

= present value of 1 payable in 6 months' time

c = coupon (percentage)

n = number of full six month periods from next interest date to redemption date

$a_n^i = (1 - V_i^n) / (i / 200)$

= present value of an annuity of 1 per six months, payable in arrears

e = 1 if the bond is cum interest and 0 if ex interest

$$\text{Accrued interest} = [(d2 - d1) / 365] \times c \quad (\text{if cum interest})$$

$$\text{Accrued interest} = - (d1 / 365 \times c) \quad (\text{if ex interest})$$

$$\text{Clean price} = \text{all-in price} - \text{accrued interest.}$$

Example

Consider the following details:

Coupon (payable half-yearly)	= 12% p.a.
Coupon payment dates	= 15 March and 15 September
Redemption (maturity) date	= 15 September 2017
Yield to maturity	= 13.5% p.a.
Settlement date	= 20 July 2013
Nominal value	= R1 000 000.

In this example the all-in price is 99.4450610, and the consideration (amount paid) would be R994 450.61. It will be evident that this bond is *cum interest*.

The following will be useful:

d1	= 20 July 2013 – 15 September 2013 = 57 days
d2	= 15 March 2013 – 15 September 2013 = 184 days
n	= 8
d1/d2	= 0.30978261
V_i	= 0.93676815
V_{in}	= 0.59300306
$V_{id1/d2}$	= 0.97996852
a_{ni}	= 6.02958430
All-in price	= $V_i^{d1/d2} \times [1/2c \times (a_n^i + e) + (100 \times V_i^n)]$ = $0.97996852 \times [6.0 \times (6.02958430 + 1) + 59.300306]$ = $0.97996852 \times 101.4778118$ = 99.4450610.

If, however, the bond was purchased on 20 August 2013, the all-in price would be 94.60061322 and the consideration R946 006.13. It will be evident that this bond is *ex interest*. The following will be useful:

d1	= 20 August 2013 – 15 September 2013 = 26 days
d2	= 15 March 2013 – 15 September 2013 = 184 days
n	= 8
d1/d2	= 0.14130435
V _i	= 0.93676815
V _{in}	= 0.59300306
V _{id1/d2}	= 0.99081254
a _{ni}	= 6.02958430
All-in price	= V _i ^{d1/d2} x [1/2c x (a _n ⁱ + e) + (100 x V _i ⁿ)]
	= 0.99081254x [6.0 x (6.02956430 + 0) + 59.300306]
	= 0.99081254x 95.4778118
	= 94.60061322.

In South Africa it is also a convention to calculate and present clients with the accrued interest and the so-called *clean price* (mainly for purposes of exchange control and to calculate the so-called *running yield*). As noted above, the *clean price* is determined by deducting the accrued interest from the all-in price.

In the above example the accrued interest price is equal to:

$$\text{Accrued interest price} = (184 - 57) / 365 \times c = 4.17534.$$

$$\text{Clean price} = \text{All-in price} - \text{accrued interest price} = 99.44506 - 4.17534 = 95.26972.$$

In the case of an *ex-interest bond*, the accrued interest is negative and, in the example, above (with settlement 20 August) the calculations are as follows:

$$\text{Accrued interest price} = - (d1 / 365 \times c) = - (26 / 365 \times 12.0) = - 0.85479.$$

$$\text{Clean price} = \text{All-in price} - \text{accrued interest}$$

$$= 94.60061 - (-0.85479)$$

$$= 95.45540.$$

3.9.2 Pricing of bonds with less than six months to redemption

In the case of bonds with less than six months to maturity, there are only two features to consider in pricing. They are as follows:

- Number of days to maturity
- The last coupon payment.

I) More than one month to redemption

In this case the concept of clean price clearly does not arise because the price is termed the *all-in price*. The price of these short-term bonds is determined in terms of the following formula:

$$\text{All-in price (PV)} = (1 + cr / 2) / [1 + (t / 365 \times ir)]$$

where

cr = annual coupon rate

t = number of days from settlement date to maturity date

ir = interest rate (or ytm).

If the bond in the above example (a reminder: maturity date 15 September 2017; coupon 12%) was purchased on 21 July 2017 at 11.0% p.a., its price would be as follows:

$$\begin{aligned} \text{All-in price} &= (1 + 0.12 / 2) / (1 + (56 / 365 \times 0.11)) \\ &= 1.04240757. \end{aligned}$$

The consideration, in this example would be as follows:

$$\begin{aligned} \text{Consideration} &= \text{nominal value} \times \text{price} = \text{R1 000 000} \times \\ &1.0424076 = \text{R1 042 407.60}. \end{aligned}$$

II) Less than one month to redemption

However, if the bond has *less than one month to redemption* (i.e. is *ex interest*), the formula changes to the following:

$$\text{All-in price (PV)} = 1 / [1 + (t / 365 \times ir)]$$

This is because the new purchaser does not receive the coupon and must be compensated for the loss of interest. Again using the above example, if the bond is purchased on 21 August 2017 at 11% p.a., the all-in price would be as follows:

$$\begin{aligned} \text{All-in price (PV)} &= 1 / [1 + (25 / 365 \times 0.11)] \\ &= 0.99252209 \end{aligned}$$

3.9.3 Formula for zero coupon bonds

As seen above, a plain vanilla bond pays a series of regular coupon payments, in addition to the repayment of the principal (face value) at maturity. Zero-coupon bonds, on the other hand, have no coupon payments during the life of the bond. They have a single payment - the principal amount (face value) - at maturity. A buyer purchases a zero-coupon bond at a discount to face value and receives the principal/face value at maturity. Thus, the return for the investor is the difference between the discounted price at purchase date and the face value at maturity.

The PV (price) of these bonds is calculated according to the normal bond pricing formula shown earlier. Thus, semi-annual compounding / discounting is assumed (in order to make them comparable to their plain vanilla counterparts).

The following formula is used

$$\text{Price of bond} = \frac{\text{face value}}{(1 + \text{ytm} / 2)^{2 \times \text{years}}}$$

Example

Calculate the price of a zero-coupon bond with a face value of R1 million, a term to maturity of 3 years and a yield of 9% p.a.

$$\begin{aligned} &= R1\,000\,000 / [1 + (0.09 / 2)]^{3 \times 2} \\ &= R767\,895.81. \end{aligned}$$

TOPIC 4 MONEY MARKET SECURITIES

LEARNING OUTCOMES

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

- Explain the general characteristics, terms and features of financial products in the class of business and any specialist characteristics, terms and features in respect of money market securities.
- Explain the typical fee structures, charges and other costs associated with money market securities.
- Explain the general risks associated with investing in, purchasing or transacting in money market securities.
- Discuss the investment and risk principles, options and strategies in respect of money market securities.
- Name the typical role-players or market participants in the money market.
- Explain the impact of applicable legislation, including taxation laws, with regard to money market securities.

4.1 THE MONEY MARKET DEFINED

The money market is defined as that part of the financial market for the issuing, buying and selling of debt instruments with maturities ranging from one day to one year – the most common maturity being 3 months.

4.1.1 Characteristics of the market

Money market instruments are not traded on a formal exchange but over-the-counter (OTC). The market has no specific location - it is based in the large financial centers of the world – with most transactions being made by telephone or electronically.

An electronic dematerialised money market environment has been established in South Africa. The characteristics of the market include standardised and electronically issued money market securities, same day settlement (T+0), electronic recording of trades in money market securities, and electronic clearing and settlement of money market trades.

When considering money markets, a distinction should be drawn between primary and secondary money markets. The primary market is the market for the issue of new money market instruments. The secondary market is the market in which previously issued money market instruments are traded.

Central banks are key participants in the money market. The money market is essential for the transmission of monetary policy. Central banks control the supply of reserves available to banks primarily through repurchase agreements or the outright purchase and sale of money market instruments such as treasury bills.

4.1.2 Money market participants

A large variety of institutions participate as issuers and investors in the money market.

Banks as custodians of the general public's money and intermediators between ultimate lenders and borrowers play a key role in that they issue and trade money markets instruments and are the main vehicle through which the SARB intervenes in the money market.

The SARB issues debentures and sells money market instruments in the secondary market mainly for monetary policy purposes. It also buys money market securities in the secondary market to provide liquidity to the banks, once again for monetary policy purposes.

The government and the corporate sector are the main ultimate borrowers in the money market. The government borrows by issuing treasury bills. Public corporations such as Eskom and Telkom issue commercial paper and development financial institutions like Landbank issue bills. Companies use money market instruments like call bonds, promissory notes and commercial paper to borrow short-term funds.

Investors in the money market include banks, insurance companies, money market funds and other collective investment schemes, hedge funds, pension funds and the Public Investment Corporation and the Corporation for Public Deposits. Companies with temporary surplus cash also invest in the money market.

4.2 MONEY MARKET INSTRUMENTS

The following money market instruments will be addressed: bankers' acceptances, commercial paper, negotiable certificates of deposits (NCDs) treasury bills, and repurchase agreements and Reserve Bank debentures (RBDs). In each case the definition, denomination, maturity, quality and market participants - issuers (or borrowers) and investors - will be considered.

4.2.1 Bankers' acceptances

A banker's acceptance (BA) is a bill of exchange drawn on and accepted by a bank. The drawer of the bill is usually a company seeking funding from a bank.

Before acceptance the bill is not an obligation of the bank; it is merely an order by the drawer to the bank to pay a specified sum of money on a specified date to a named person or to the bearer of the bill.

Upon acceptance by the bank the bill becomes a primary and unconditional liability of the bank. In effect, the bank is substituting its credit for that of the company, enabling the company to borrow indirectly in the money market.

BA's are no longer an important form of financing in the South African money market because they have lost their liquid asset status in terms of the Banks Act and borrowers have turned to other forms of short-term financing. BA's are also declining in importance in the US and Europe.

I) Characteristics

Denomination: A wide range of denominations are available, but acceptances are usually issued in multiples of R100 000 and R1 million.

Maturity: Typically, 90 days but could range from 30 to 270 days.

Issuers: The drawer or borrower is usually a company. The acceptor is a bank.

Investors: Banks, private and public corporations, money market funds, hedge funds, mutual funds, pension funds, insurance companies and individuals.

Advantages to issuers

A banker's acceptance has the following advantages to the issuer:

- Simplicity.
- It is a cheaper form of financing for the company than a bank overdraft.

Disadvantages to issuers

A banker's acceptance has the following disadvantages to the issuer:

- A bank line of credit is required, and the bank may require security or collateral.
- Borrowing via Banker's Acceptances is more expensive than commercial paper.
- Borrowing via Banker's Acceptances does not allow companies who do not have direct access to the money market to obtain direct access. Indirect access is more expensive than direct access as the company must pay the accepting bank to open the door to obtain the right of entry to the money market.

Advantage to investors

A banker's acceptance has the following advantages to the investors:

- Banker's Acceptances are considered to be relatively high-quality investments because they are "two-name" paper i.e. two parties, the accepting bank (primary obligator) and the drawer (contingent obligator if the bank fails to pay) are obligated to pay the holder on maturity.

Disadvantages to investors

A banker's acceptance has the following disadvantages to the investor:

- Although Banker's Acceptances are considered to be relatively high-quality investment, investing therein exposes the investor to some credit risk. Consequently, Banker's Acceptances offer a higher yield than treasury bills of the same maturity.
- Large denominations are unattractive to investors.

4.2.2 Commercial paper

It is not possible to provide a precise, internationally-acceptable definition of commercial paper as the dividing line between commercial paper and other instruments is generally country-specific and reflects differences in countries' regulatory frameworks. However, in all markets, commercial paper is a form of fixed-maturity short-term unsecured single-name negotiable debt issued primarily by non-banks.

In South Africa, according to an exemption notice in terms of the Banks Act (Government Notice No. 2172), commercial paper excludes Banker's Acceptances and includes:

- Short-term secured or unsecured promissory notes with a fixed or floating maturity.
- Call bonds.
- Any other secured or unsecured written acknowledgement of debt issued to acquire working capital.
- Debentures or any interest-bearing written acknowledgement of debt issued for a fixed term in accordance with the provisions of the Companies Act, 2008 such as bonds.

In line with this definition promissory notes and call bonds will be discussed in this topic.

I) Promissory Notes

A Promissory Note (PN) is a written promise made by the issuer (borrower) to the investor (lender) to repay a loan or debt under specific terms – usually a stated time, through a specified series of payment or upon demand.

The issue of Promissory Notes generally takes place under a pre-announced commercial paper program. Once a program is announced, the issuer is free to raise funds from the market as and when required.

Denomination: Promissory Notes are issued in multiples of R100 000 and R1 million.

Maturity: Promissory Notes are usually available for 3, 6, 9 and 12 months and every 6 months thereafter up to 60 months depending on the program.

Quality: Obligation of the issuer (borrower).

Issuers: Companies.

Investors: Banks, pension funds, insurance companies and individuals.

Advantages to issuers

A Promissory Note has the following advantages to the issuer:

- It is cheaper form of financing for the company than a bank overdraft.
- The maturity of a Promissory Note can be tailored to meet the company's funding requirement and/or to take advantage of investor demand.

Disadvantages to issuers

A Promissory Note has the following disadvantages to the issuer:

- If the Promissory Note is not underwritten by for example, a bank, the issuer may not be able to place all the paper with investors and raise the funds required.
- For a viable commercial paper market, access to or establishment of rating agencies is essential.

Advantages to investors

A Promissory Note has the following advantages to the investors:

- Promissory Notes have a wide range of maturities to enable investors to find an instrument that best suit their requirements.
- A liquid secondary market generally exists.

Disadvantages to investors

A Promissory Note has the following disadvantages to the investor:

- Investors are exposed to credit risk.

II) Call Bonds

A Call Bond is a loan made to the issuer (borrower) by the investor (lender) which may be terminated or called at any time.

Denomination: Call Bonds are issued in multiples of R1 million, R5 million and R10 million.

Maturity: Call Bonds are repayable on demand.

Quality: Obligation of the issuer (borrower).

Issuers: Companies or banks.

Investors: Banks, money market funds, pension funds, insurance companies and individuals.

Advantages to issuers

A Call Bond has the following advantages to the issuer:

- A Call Bond is a flexible form of financing in terms of arranging, drawing down and repaying the loan.

Disadvantages to issuers

A Call Bond has the following disadvantages to the issuer:

- A Call Bond can be expensive compared to other loans.
- Call bonds are exposed to sharp movements in interest rates, which is unfavorable when rates are rising.
- For a viable commercial paper market, access to or establishment of rating agencies is essential.

Advantages to investors

A Call Bond has the following advantages to the investors:

- Call bonds are immediately redeemable.
- A liquid secondary market generally exists.

Disadvantages to investors

A Call Bond has the following disadvantages to the investor:

- Investor' are exposed to credit risk.
- Large denominations are unattractive to investors.

4.2.3 Negotiable Certificates of Deposit (NCD)

A Negotiable Certificate of Deposit (NCD) is a negotiable fixed deposit receipt issued by a bank for a specified period at a stated rate. Negotiable Certificates of Deposit are usually in bearer form (i.e. payable to whoever is in possession of it).

Denomination: Negotiable Certificate of Deposit are issued in multiples of R1 million.

Maturity: From less to one year up to five years.

Quality: Obligation of the issuing bank.

Issuers: Banks

Investors: Wide range of institutions: banks, private and public corporations, pension funds, insurance companies, money market funds, hedge funds, mutual funds, pension funds and individuals.

Advantages to issuers

A Negotiable Certificate of Deposit has the following advantages to the issuer:

- Generally cheaper than instruments in the inter-bank market.

Disadvantages to issuers

A Negotiable Certificate of Deposit has the following disadvantages to the issuer:

- More expensive than retail deposits.

Advantages to investors

A Negotiable Certificate of Deposit has the following advantages to the investors:

- Relatively risk free.
- A liquid secondary market generally exists.
- Banks are willing to tailor maturities to meet the needs of investors.

Disadvantages to investors

A Negotiable Certificate of Deposit has the following disadvantages to the investor:

- Investors are exposed to credit risk.
- Large denominations are unattractive to investors.

4.2.4 Treasury Bills

A Treasury Bill (TB) is a short-term debt obligation of the government payable on a certain future date.

Denomination: Treasury Bills are issued in multiples of R10 000 and for an amount not less than R100 000.

Maturity: A tenor of between 90 days and 6 months; special tender bills have tenors of up to one year.

Quality: Treasury Bills are obligations of the government and are thus considered to be free of domestic credit risk.

Issuers: The Government.

Investors: Mainly held by banks -also held by insurance companies, money market funds, hedge funds, mutual funds and pension funds.

Advantages to issuers

A Treasury Bill has the following advantages to the issuer:

- Main vehicle for central bank accommodation policy.

Advantages to investors

A Treasury Bill has the following advantages to the investors:

- Considered to be free of domestic credit risk.
- Treasury Bills usually qualify as liquid assets for banks and may be held by insurers and pension funds to satisfy their relevant regulatory and investment requirements.
- A liquid secondary market exists.

Disadvantages to investors

A Treasury Bill has the following disadvantages to the investor:

- Because Treasury Bills are considered to be free of domestic credit risk, they have a lower yield than other money market instruments.

4.3 REPURCHASE AGREEMENTS

A Repurchase Agreement (repo) is an agreement under which funds are borrowed through the sale of short-term securities such as Treasury Bills with a commitment by the seller (borrower) to buy the security back from the purchaser (investor) at a specified price at a designated future date.

Essentially the borrower is borrowing money and giving the security as collateral for the loan and the investor is lending money and accepting the security as collateral for the loan.

Denomination: Depends on the underlying security.

Maturity: Overnight to 30 days and sometime longer.

Quality: Obligation of the issuer with collateral usually in the form of high-quality securities such as treasure bills.

Issuers: Large companies including banks use repos to borrow short-term funds. Repos are also used between central banks and banks as part of the central banks' open-market operations.

Investors: A wide variety of investors including mutual and hedge funds.

Advantages to issuers

A Repurchase Agreement has the following advantages to the issuer:

- Repos can be used to borrow short-term funds to finance positions and to cover short positions at an acceptable cost.

Disadvantages to issuers

A Repurchase Agreement has the following disadvantages to the issuer:

- Investors may require credit risk mitigation such as daily margin calls i.e., if the value of the security falls below the amount of the loan.

Advantages to investors

A Repurchase Agreement has the following advantages to the investors:

- If the collateral is Treasury Bills, investors earn a risk-free rate higher than the Treasury Bill rate without sacrificing liquidity.

Disadvantages to investors

A Repurchase Agreement has the following disadvantages to the investor:

- Investors are exposed to credit risk if the value of the security falls i.e., the amount of the collateral is less than the amount of the loan.

4.3.1 Reserve Bank Debentures

A Reserve Bank Debenture (RBD) is an unsecured fixed interest certificate of debt issued by the South African Reserve Bank (SARB).

Denomination: Issued in multiples of R1 million and for a minimum amount of R1 million.

Maturity: 7, 14, 28, 56 days or at the discretion of SARB.

Quality: Obligation of SARB. Since the creditworthiness of a central bank is generally the same as the country. Reserve Bank Debentures are considered to be free of domestic credit risk.

Issuers: SARB

Investors: Mainly held by banks but also held by insurance companies, money market funds, hedge funds, mutual funds and pension funds.

Advantages to issuers

A Reserve Bank Debenture has the following advantages to the issuer:

- Used to manage liquidity conditions in the money market.

Advantages to investors

A Reserve Bank Debenture has the following advantages to the investors:

- Considered to be free of domestic credit risk.
- Reserve Bank Debentures usually qualify as liquid assets for banks and may be held by insurers and pension funds to satisfy their relevant regulatory and investment requirements.
- Reserve Bank Debentures may be used by banks as collateral for SARB accommodation.

Disadvantages to investors

A Reserve Bank Debenture has the following disadvantages to the investor:

- Because Reserve Bank Debentures are considered to be free of domestic credit risk, they have a lower yield than other money market instruments.

4.4 THE ROLE OF MONEY MARKET INSTRUMENTS IN AN INVESTMENT PORTFOLIO

Cash and money-market instruments are low-risk, short-term liquid assets. Cash is primarily kept to provide for future expenses. Investors may also choose to keep additional cash in the form of an emergency fund which can be used to pay for unexpected expenses.

When constructing a new investment portfolio, money-market instruments can be used as a 'parking area' until the investor is able to make an informed decision regarding the long-term investment of the funds. Furthermore, when market conditions are unfavourable, an investor may decide to use money-market instruments as a 'safe haven' to protect part of the portfolio's value against negative market movements. Cash and money-market instruments are generally regarded as nearly risk-free instruments. In a portfolio context, cash can be used to decrease the overall portfolio risk to acceptable levels.

There is, however, a risk attached to holding too many money-market instruments in an investment portfolio. The returns on money-market instruments are normally only marginally higher than the inflation rate and they are fully taxable. Therefore, the net after-tax returns on these instruments usually cannot keep up with inflation and a portfolio comprising only money-market instruments will lose purchasing power over time.

4.5 TYPICAL FEES INVOLVED WITH MONEY MARKET INSTRUMENTS

When money-market instruments are traded in the secondary market, a broker or dealer may be involved. A broker will charge a brokerage fee, whereas a dealer will charge a bid-ask spread. Most investors will participate in the money market through a money-market fund, which will charge a management fee. Banks also offer depositors cash investment options which earn higher levels of interest, depending on the notice period related to the investment. These investments usually attract little to no monthly fees and provide banks with a relatively cheap source of funding.

4.6 TAX CONSIDERATIONS

The interest earned on cash and money-market instruments will form part of the receiver's income and will be subject to income tax. For the 2019 tax year, individuals younger than 65 will be exempt from paying tax on the first R23 800 of interest received. For individuals who are 65 and older, the amount of interest exempted from income tax increases to R34 500.

4.7 VALUATION OF MONEY MARKET INSTRUMENT

Money market instruments are either discount or interest-add-on securities:

Discount instruments are securities such as treasury bills that are sold at a discount to face or par value and redeemed at face and par value on maturity date. For example, assume an investor buys a 91-day treasury bill with a face value of R1 million for R975 000. In 91 days the investor will receive R1 million when the National Treasury redeems the bill. Thus, the investor earned interest of R25 000 over the period of 91 days.

Interest-add-on securities are securities such as NCDs and RBDs that are sold at face or par value and redeemed at face value plus interest on maturity date. For example, assume an investor buys a 91-day NCD with a face value of R1 million. The investor will pay R1 million for the NCD. In 91 days the investor will receive R1 million plus interest when the issuer redeems the NCD.

4.7.1 Calculation the value of interest add-on instruments

The value of interest add on money market securities are calculated with the use of the simple interest formula.

Simple interest is also referred to as interest at the end of the term. It assumes that interest earned on an investment is not reinvested.

The basic formula to calculate simple interest is:

$$\text{Interest} = \text{Present value} \times \text{interest rate} \times \text{time}$$

For example, R1 000 invested for 1 year at 14% p.a. will earn R140 interest (i.e., $1\,000 \times 0.14 \times 1$) at the end of the year.

R1 000 invested for 2 years at 14% p.a. will earn R280 interest (i.e., $1\,000 \times 0.14 \times 2$) at the end of the term.

The basic formula can be expanded to determine the future value of the principal at maturity i.e., to what amount the money will grow at the end of the term.

$$\text{Future value} = \text{Present value} (1 + \text{interest rate} \times \text{time})$$

For example, R1 000 invested for 1 year at 14% p.a. will have a value of R1 140 (i.e., $1\,000 \times (1 + 0.14 \times 1)$) at the end of the year.

R1 000 invested for 2 years at 14% p.a. will have a value of R1 280 (i.e., $1\,000 \times (1 + 0.14 \times 2)$) at the end of the term.

The present value formula can be obtained from the future value formula:

$$\text{Present value} = \text{Futures value} / (1 + \text{interest rate} \times \text{time})$$

For example, a loan with a maturity value of R120 000 and interest rate of 15% p.a. has a present value of R115 662.65 (i.e., $120\,000 / (1 + 0.15 \times 3/12)$) 3 months prior to its maturity.

4.7.2 Calculating the value of discounted instruments

When interest is paid at the beginning of the term, the lender deducts the interest at the time the loan is made. At maturity the principal or face value is due. Loans dealt with in this way are termed discounted.

The interest paid is called the discount and the amount advanced by the lender the discounted value. Thus, the discounted value is the present value of the amount paid back at maturity.

The formula for calculating the discount amount is:

$$\text{Discount amount} = \text{Future value} \times \text{discount rate} \times \text{time}$$

The discounted or present value formula is:

$$\text{Present value} = \text{future value} (1 - \text{discount rate} \times \text{time})$$

For example, a treasury bill with a face value of R1 million, a discount rate of 15.5% p.a. and a term of 90 days has a discount of R38 219.18 (i.e., $1\,000\,000 \times 0.155 \times 90/365$) and discounted value of R961 780.82 (i.e., $1\,000\,000 \times (1 - 0.155 \times 90/365)$).

4.7.3 The difference between interest and discount

Interest is calculated on the present value and added to the present value to determine the future value. Discount is calculated on the future value and subtracted from the future value to determine the present value.

The discount rate is expressed as a percentage of the future value and the interest rate as a percentage of the present value.

The formulas to convert discount rates to interest rates and vice versa are:

$$\text{Interest rate} = \text{discount rate} / (1 - \text{discount rate} \times \text{time})$$

$$\text{Discount rate} = \text{interest rate} / (1 + \text{interest rate} \times \text{time})$$

For example, a 3-month discount rate of 15% p.a. implies a 3-month interest rate of 15.58% p.a. (i.e., $0.15 / (1 - 0.15 \times 3 / 12)$). A 3-month interest rate of 15.58% implies a 3-month discount rate of p.a. (i.e., $.1558 / (1 + 0.1558 \times 3 / 12)$).

TOPIC 5 DERIVATIVE INSTRUMENTS

LEARNING OUTCOMES

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

- Explain the general characteristics, terms and features of financial products in the class of business and any specialist characteristics, terms and features in respect of derivative instruments.
- Explain the typical fee structures, charges and other costs associated with derivative instruments.
- Explain the general risks associated with investing in, purchasing or transacting in derivative instruments.
- Discuss the investment and risk principles, options and strategies in respect of derivative instruments.
- Explain the impact of applicable legislation, including taxation laws, with regard to derivative instruments.

5.1 THE MARKET DEFINED

Derivatives are financial instruments that derive their value from the values of underlying securities and other variables. Such variables can be an index such as FTSE/JSE All-Share Index, reference rates such as JIBAR, an underlying instrument in the cash market (equity, money, bond, foreign exchange or commodity) or in the derivatives market. For example:

- A currency option is linked to a particular currency pair in the foreign exchange market.
- A bond futures contract is linked to a certain bond in the bond market.
- An agricultural futures contract is linked to maize or wheat in the commodities market.
- An option on a bond futures contract is linked to a bond futures contract trading in the derivatives market.

Derivatives can be based on almost any variable including from the price of electricity (electricity derivatives), the weather in London (weather derivatives), the credit-worthiness of Anglo American Plc (credit derivatives) to the amount of hurricane insurance claims paid in 2011 (insurance derivatives).

Derivatives allow businesses to hedge risks that arise from factors outside their control such as volatile commodity prices, equity prices, interest rates and foreign currencies. For example, a firm can protect itself from increases in the price of a commodity that it uses in production by entering into a derivative contract that will gain value if the price of the commodity rises. Derivatives are also used by firms seeking profits by betting on which way prices will move. Such speculators provide liquidity to the derivatives market and assume the risks that hedgers wish to avoid.

Derivatives are also referred to as contingent claims – the value of the claim being contingent or dependent on the value of the underlying variable.

5.1.1 Characteristics of the market

Derivatives can be privately negotiated over-the-counter or traded on organised exchanges such as JSE, LIFFE (London International Financial Futures and Options Exchange) and the Chicago Board of Trade (part of the CME Group).

The two organisations that make up an organised derivatives market are the exchange and its clearinghouse. The clearinghouse processes all trades executed on the exchange. It acts as counterparty to all transactions entered on the exchange and assumes the contractual relationship between the buyer and seller i.e., it becomes the buyer to each seller and seller to each buyer. The clearinghouse is responsible for determining the profit and loss on all open positions by revaluing them at the end of each business day at the closing contract prices traded on the exchange; this process is referred to as marking-to-market.

In South Africa exchange-traded derivatives contracts trade on the four JSE derivatives markets namely the currency derivatives market, equity derivatives market, interest-rate market, and the South African Futures Exchange (SAFEX) commodity derivatives market. The JSE derivatives markets have their own central clearinghouse namely JSE Clear.

The obligation of parties to fulfil their commitments under an exchange-traded derivatives contract is secured by margining arrangements. There are two types of margin: initial and variation.

- The initial margin is a fixed sum payable in respect of each open contract.
- A variation margin is only called for if the daily marking-to-market of all open derivatives contracts results in the margin (the initial margin plus any accumulated profits and less any accumulated losses) falling below some maintenance level determined by the exchange. It is because of the margining of all open losses that the clearinghouse can guarantee all contracts.

Secondary markets in exchange-traded derivatives are possible due to the existence of the clearinghouse and standardised contracts. A buyer who does not want to hold a position to maturity enters into another contract of identical terms but on the opposite side prior to maturity. Since the individual is now buyer and seller of the same contract, the clearinghouse nets out the positions.

Subject to approval by regulatory authorities, exchanges are free to create virtually any derivatives contract they please. However, two opposing forces influence contract design: standardisation and market depth and liquidity.

Standardisation implies that the asset underlying the derivatives contract is clearly and narrowly defined. However, this may fail to attract sufficient market participants to provide the depth and liquidity necessary to allow secondary market trading in size to be carried out with relatively little impact on price and to limit the possibility of corners or squeezes.

5.2 FORWARDS

A forward is a contract between a buyer and a seller that obliges the seller to deliver, and the buyer to accept delivery of, an agreed quantity and quality of an asset at a specified price (now) on a stipulated date in the future.

Forward contracts are traded over-the counter and is the forerunner of futures.

The largest market in the category forward markets is the forward foreign exchange market.

Advantages of forwards
Flexibility with regard to delivery dates
Flexibility with regard to size of contract

Disadvantages of forwards
The transaction rests on the integrity of the two parties i.e. there is a risk of non-performance
Both parties are “locked in” to the deal for the duration of the transaction, i.e. they cannot reverse their exposures
Delivery of the underlying asset took place, i.e. there was no option of settling in cash
The quality of the asset may vary
Transaction costs are high

5.2.1 Forwards in the debt markets

1) Forward interest rate contracts

A forward interest rate contract (FIRC) is the sale of a debt instrument on a pre-specified future date at a pre-specified rate of interest. This category includes forwards on indices of interest rate instruments.

Transaction is a private deal between two parties and not negotiable (marketable)

The FIRC market is the domain of the large players i.e. banks and institutions.

The implied forward rate is used to calculate the fair value or rate of interest at which the FIRC will trade

$$IFR = \left(\left(\frac{1 + (ir_L \times t_L)}{1 + (ir_S \times t_S)} \right) - 1 \right) \times \frac{365}{T_L - T_S}$$

$$IFR = \{ [1 + (ir_L \times t_L)] / [1 + (ir_S \times t_S)] - 1 \} \times [365 / (t_L - t_S)]$$

Where

IFR = Implied forward rate

ir_L = spot interest rate for the longer period

ir_S = spot interest rate for the shorter period

t_L = Longer period expressed in days/365

t_S = Shorter period expressed in days/365

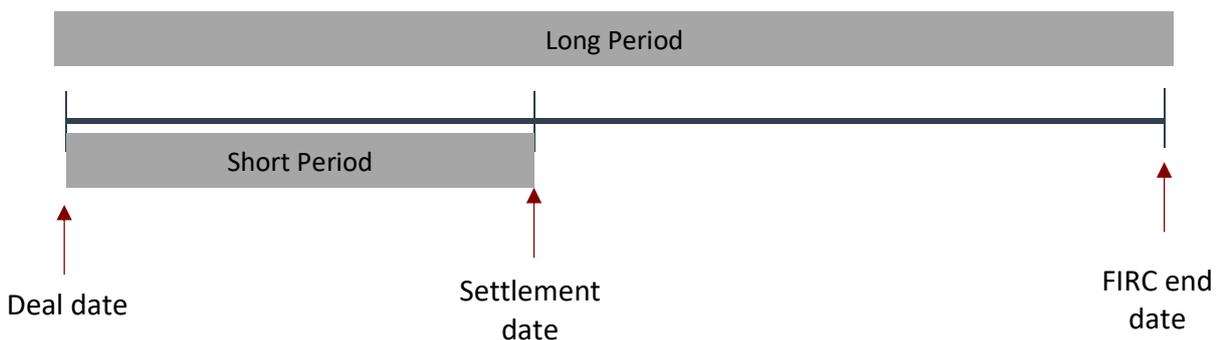
Remember short period equals FIRC settlement date – deal date.

Interest rate short period is related to the interest rate on an instrument at deal date that equals the durations of the short period.

Remember long period equals FIRC deal date to FIRC end date

Interest rate long period is related to the interest rate on an instrument at deal date that equals the durations of the long period.

Figure 5.1: Forward interest rate contracts



Example

An insurance company requires a R100 million (plus) 206-day negotiable certificate of deposit (NCD) investment in 100 days' time when it receives a large interest payment. It wants to secure the rate now because it believes that rates on that section of the yield curve are about to start declining, and it cannot find a futures contract that matches its requirement in terms of the exact date of the investment (100 days from now) and its due date (306 days from now).

It approaches a dealing bank and asks for a forward rate on R100 million (plus) 206-day NCDs for settlement 100 days from now. The spot rate (current market rate) on a 306-day NCD is 7.0% pa and the spot rate on a 100-day NCD is 5% pa.

It will be evident that the dealing bank has to calculate the rate to be offered to the insurer from the existing rates. This involves the calculation of the rate *implied* in the existing spot rates, i.e. the implied forward rate (IFR).

$$\begin{aligned} IFR &= \left(\left(\frac{1 + (0.07 \times 306/365)}{1 + (0.05 \times 100/365)} \right) - 1 \right) \times \frac{365}{206} \\ &= 7.863\% \text{ p. a.} \end{aligned}$$

The bank will quote a rate lower than this rate in order to make a profit.

II) Repurchase agreements

A repurchase agreement (repo) is a contractual transaction in terms of which an existing security is sold at its **market value** (or lower) at an agreed rate of interest, coupled with an agreement to repurchase the same security on a specified, or unspecified, date.

Terminology

We need to know which terminology applies from the seller and buyer point of view.

Table 5.1: Terms applicable to seller and buyer point of view

Terms that apply to seller (maker) of agreement	Terms that apply to buyer of agreement
Repurchase agreement – seller agrees to repurchase security	Resale agreement – buyer agrees to resell security
Buy-back agreement	Sell-back agreement
Doing a warehousing transaction	Buyer is warehousing an asset
Repo-out	Repo-in
Securities carried	Carrying securities

From the definition we can identify terminology that needs further explanation:

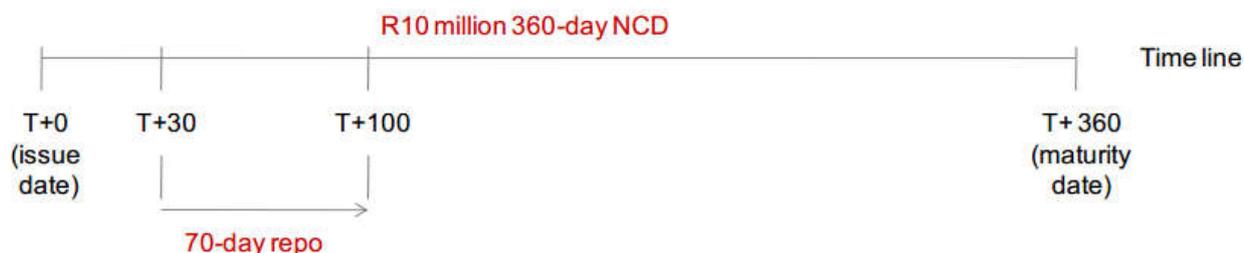
- *Agreement:* The transaction note confirming the sale of the security can contain a note stipulating the agreement to repurchase. Alternatively, two transaction notes can be issued, i.e. a sale note together with a purchase note dated for the agreed repurchase date. It is market practice that underlying all repurchase agreements is one of the internationally recognised Master Repurchase Agreements.
- *Existing security:* The maker of the repo sells a security already in issue to the buyer of the agreement.
- *Market value:* The security is sold at its market value (and sometimes at better, i.e. lower, than market value), in order to protect the buyer of the repo against default of the maker/seller.
- *Agreed rate of interest:* The agreed rate for the term of the agreement is the interest rate payable on the repo by the seller for the relevant period. This applies in the case where the maturity date of the agreement is specified. A small number of repos are “open repos”, i.e. both the buyer and the seller have the right to terminate the agreement at any time. The rate payable on these open repos is a rate agreed between the two parties to the deal; the rate may be benchmarked, or it may be agreed daily.

- *Specified maturity date:* The specified maturity date is the date when the agreement is terminated. The buyer sells the security / securities underlying the repo back to the maker for the original consideration plus the amount of the interest agreed.
- *Unspecified maturity date:* In the case of an agreement where the maturity date is not specified (the open repo), the termination price (original consideration plus interest) cannot be agreed at the outset of the agreement. The rate at which interest is calculated can be fixed or floating but is usually the latter. In the case of a floating rate, as noted, the rate would be an agreed differential below or above benchmark rate.

Example

A bank has in portfolio a R10 million NCD of another bank that it is holding in order to make a capital profit when rates fall. The NCD had 360 days to maturity when it was purchased. It is now day 30 in the life of the NCD (i.e. it has 330 days to run), and the bank needs funding for a particular deal that has 70 days to run. The bank sells the NCD to a party that has funds available for 70 days under agreement to repurchase the same NCD after 70 days. The rate agreed is the market interest rate for 70 days.

Figure 5.2: Example of repo



Other stipulations

SARB (Reserve bank) enters into repurchase agreements (from the view of the bank) to mop up liquidity as to increase the money shortage.

The Reserve bank and the banks are the largest participants in the repurchase market.

An open repurchase agreement has no agreed termination date, and **both** parties have the option to terminate the agreement without notice.

Fixed term repos are repurchase agreements where the rate and the term are agreed at the outset of the agreement. The term of repos usually ranges from a day to a few months.

Only prime marketable securities are used in repos, and this includes money market and bond market securities.

Repos are usually done at market value of the underlying securities or lower than market value.

The underlying securities in repos are rendered negotiable to protect the investor against the maker of the repo i.e. in the event of the maker reneging on a deal, the investor has the right to sell the underlying securities.

The reserve bank requires banks to report on balance sheet all their repos, for purposes of their capital adequacy requirement, i.e. banks are required to allocate capital to this activity.

If a bank brings back on balance sheet securities sold, it must create a liability, and this liability item is termed “loans under repurchase agreements”.

Institutions involved in the repo market

The main reason that give rise to repurchase agreements is that one party wish to acquire funds for a period and the other party with a matching investment requirement. There are many strategies that underlie these agreements.

The parties involved in this market are the money market broker-dealers, the banks, corporate entities, pension funds, insurance companies, money market funds, the Reserve Bank, foreign investors, speculators in the bond market, etc.

Of all these institutions, the Reserve Bank and the banks are the largest participants, because the *repo* is the method used by the Reserve Bank to provide accommodation to the banks.

Calculations

Interest rate payable on repo

$$\text{Interest amount} = \text{Consideration} \times \text{interest rate} \times \text{time}$$

NB!!!! Consideration = market value or lower

Example

If, for example, R10 million (nominal value) NCDs with a maturity value of R10 985 000, and a market value of R10 300 000, were sold for seven days at a repo rate of 12.0% pa, the interest payable would be as follows:

$$\begin{aligned} \text{Interest amount} &= R10\,300\,000 \times 0.12 \times \frac{7}{365} \\ &= R23\,04.11 \end{aligned}$$

III) Forward rate agreement (FRA)

A forward rate agreement (FRA) is an over-the-counter contract between two parties whereby they agree that a fixed interest rate will apply to a certain amount of money during a specified future period, starting on a specific future date.

The amount of money is referred to as the notional principal amount and the specified future period will normally coincide with the term of an underlying loan or an investment which will be made during the same period.

FRAs are used mainly to hedge against adverse interest rate movements during a future period of 3 or 6 months.

A FRA contract always contains two interest rates. One is the fixed rate (i.e. the forward rate), which is the rate that the buyer pays to the seller, based on the notional amount.

The second is the floating rate, also known as the reference rate, that the seller pays to the buyer and which is also based on the same notional amount

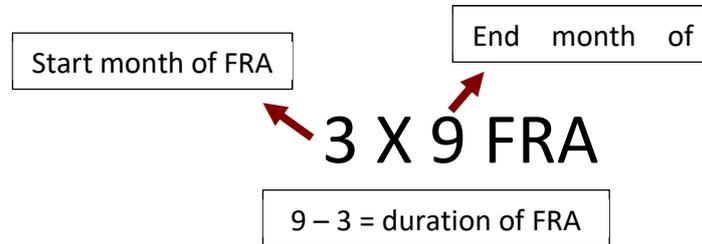
JIBAR is usually used as reference rate

The buyer will always transact at the offer rate quoted by the dealing bank.

Timeline of a FRA

The timeline of a FRA is depicted in the figure below.

Figure 5.3: FRA Time line



Thus, the 3 X 9 FRA commences 3 months from deal date and ends 9 months thereafter. The duration of FRA is six months.

Likewise, a 1 x 7 FRA will start one month from the contract date and will expire 6 months thereafter.

Formulas

If FRA is paid at end of period, settlement amount is as follows:

$$\text{Settlement amount} = \text{notional amount} \times \text{interest rate differential} \times \text{time expressed as fraction of year}$$

If FRA is paid at beginning of period, (usually the case) settlement amount is as follows – Formula 5 & 6:

$$\begin{aligned} \text{Present value settlement amount} &= \text{Settlement amount} \times \text{discount factor} \\ &= \text{settlement amount} \times [1 / [1 + (\text{reference rate} \times \text{time expressed as fraction of year})]] \end{aligned}$$

The forward rate quoted on the FRA will be based on the implied forward rate.

Example

This type of instrument is particularly useful for the company treasurer who is of the opinion that the central bank is about to increase the repo rate and that the interest rates on commercial paper (his borrowing habitat) will rise sharply.

He needs to borrow R20 million in three months' time for a period of three months. He approaches a dealing bank that he normally deals with on 4 March and obtains quotes on a series of FRAs.

FRA	Bid (% p.a.)	Offer (% p.a.)	Explanation
3 X 6	10.00	10.10	3-month rate in 3 months' time
6 X 9	10.20	10.30	3-month rate in 6 months' time
9 X 12	10.40	10.50	3-month rate in 9 months' time

The treasurer verifies these rates against the quoted FRA rates of another two banks (i.e. to ensure that he is getting a good deal), finds that they are fair and decides to deal at the 10.10% pa offer rate for the 3 x 6 FRA for an amount of R20 million, which matches the company's requirement perfectly.

The applicable future dates are 4 June and 3 September (91 days). The transaction means that the dealing bank undertakes to fix the 3-month borrowing rate in three months' time at 10.10% for the company. The transaction is based on a *notional amount* of R20 million. The notional amount is not exchanged; it merely acts as the amount upon which the calculation is made.

The rate fixed in the FRA is some *benchmark* (also called *reference*) rate, or a rate referenced on a benchmark rate, i.e. some rate that is readily accepted by market participants to represent the 3-month rate. We assume this is the 3-month JIBAR rate, which is a yield rate.

On settlement date, i.e. 4 June, the 3-month JIBAR rate is 10.50% pa. On this day the 3-month (91-day) commercial paper rate is also 10.50% pa (which it should be because the JIBAR rate is representative of the 3-month rate).

The company borrows the R20 million required at 10.50% through the issue of commercial paper for 91 days. According to the FRA the dealing bank now owes the company an amount of money equal to the difference between the spot market rate (i.e. 3-month JIBAR = 10.50% pa) and the agreed FRA rate (i.e. 10.10% pa) times the notional amount.

This is calculated as follows:

$$\begin{aligned}
 SA &= R20\,000\,000 \times 0.004 \times \frac{91}{365} \\
 &= R19\,945.21
 \end{aligned}$$

It will be evident that the exchange of interest on R20 million does not take place; the dealing bank only settles the difference.

5.2.2 Forwards in the equity market

There is only one type of forward contract in the equity market, and this is the outright forward.

An outright forward is simply the sale of equity at some date in the future at a price agreed at the time of doing the deal.

Cost of carry model is used to calculate the forward price- Formula 7

$$\text{Forward price} = \text{spot price} \times [1 + (\text{interest rate} \times \text{time})]$$

Example

A pension fund believes the price of Company XYZ shares will increase over the next 85 days when its cash flow allows the purchase of these shares.

It requires 100 000 shares of the company and approaches a broker-dealer to do an 85-day forward deal. The broker-dealer buys the 100 000 shares now at the spot price of R94 per share and finances them by borrowing the funds from its banker at the prime rate of 12.0% p.a. for 85 days.

It offers the pension fund a forward deal based on the following (assumption: non-dividend paying share; the calculation for a dividend paying share is introduced later):

- Spot price = 100 000 shares of Company XYZ at R94.0 per share = R9 400 000
- Term = 85 days
- Interest rate = 12.5%

The forward price can be calculated as follows:

$$\begin{aligned} \text{Forward price} &= R9\,400\,000 \times \left[1 + \left(0.125 \times \frac{85}{365} \right) \right] \\ &= R9\,673\,634 \end{aligned}$$

After 85 days the pension fund pays the broker-dealer this amount for the 100 000 Company XYZ shares, and the broker-dealer repays the bank:

$$\begin{aligned} \text{Consideration} &= R9\,400\,000 \times \left[1 + \left(-.12 \times \frac{85}{365} \right) \right] \\ &= R9\,662\,684.93 \end{aligned}$$

The broker-dealer makes a profit of R10 949.07 (R9 673 634.00 – R9 662 684.93).

Clearly, the pension fund at the start of the deal is of the opinion that the price of the shares will increase by more than the price of money for the period. Pension funds do outright forward equity transactions because they are not permitted to incur borrowings. The pension fund would also “shop around” to find the best deal.

5.2.3 Forwards in the commodities market

Forward price of commodities takes into account storage costs

$$\text{Forward price} = [\text{spot price} \times (1 + (\text{interest rate} \times \text{time}))] + (\text{storage cost} \times \text{days to expiry})$$

It will be evident that this is a “carry cost” (CC) model, where there are two costs, interest and storage, and no income on the asset is forthcoming (if income were forthcoming the model becomes a “net carry cost” (NCC) model.

5.2.4 Forwards on derivatives

In addition to the forwards that are found in the four financial markets, forwards on swaps also exist.

The specific swaps on which forwards are written are interest rate swaps (IRSs).

The forward IRS is an agreement to enter into a swap at some stage in the future at terms agreed upfront.

5.3 FUTURES

Futures contracts are standardised forward contracts that are exchange traded, and they developed because forward contracts have some disadvantages, the most obvious one being that forward contracts do not easily offer the advantage of reversing transactions.

Future contracts are marketable in the sense that they can be closed out by undertaking an equal and opposite transaction.

The buyer and the seller deal with a member of the exchange, unless the buyer and seller are members of the exchange.

The transaction is guaranteed by the exchange, i.e. the exchange acts as the seller for each buyer, and as the buyer for each seller.

The futures market is a typical example of a “zero sum game”, i.e. for every buyer of a contract there is a seller.

Consequently, if the buyer makes a loss, the seller gains by the same amount.

Delivery of underlying is rare as participants just settle their profit or loss in cash on settlement.

Every futures contract obviously has a specific size, as opposed to a forward contract where size is negotiated between buyer and seller. For example, in the case of the equity index futures contracts in South Africa, the size of each contract is R10 x the index value.

The price of the future is related to the price of the underlying instrument. As the price of the underlying instrument varies, so does the price of the future (but not always to the same extent).

The price of the future at the expiry time on the expiry date is equivalent to the spot price. It will therefore be clear that the futures price moves closer to the spot price as time goes by (i.e. it converges on the spot price).

Price is the only feature of the future that varies.

Each contract has a minimum movement size or "tick size", for example R1.

At times the future can trade at a discount to the spot price.

Expectations at times play a major role in the determination of the real futures price, the real futures price is determined by an interplay of supply and demand.

5.3.1 Organisational structure of the futures market

The market form of the futures market is formal in the shape of an exchange.

About trading driver and the trading system, the futures market in South Africa is order and ATS (automated trading system), i.e. an order-matching method on an ATS is followed.

The rules of the exchange allow for off-ATS trading. These deals are negotiated between members and then reported on the ATS. However, most futures deals are done via the ATS.

All deals are cleared through a clearing house that is usually separate from the exchange.

As soon as a deal is struck, the exchange (in fact the clearing house) interposes itself between the two principals that concluded the deal.

The clearing house is backed by a Fidelity fund.

Each member also carries its client's losses if client defaults, just as clearing member will carry member's losses if member defaults.

5.3.2 Margining

The exchange requires that for each transaction the client is obliged to place with it a "good faith deposit that will ensure that the obligations under the contracts will be fulfilled, which is called the margin deposit.

At the start of a deal this is called the initial margin, and this is set by the exchange

Each contract is marked to market every day, meaning that at a point in time each contract is “valued”

This takes place at the end of the trading day and it is based on the last settlement price.

At the end of each day the margin account is topped up, where required – called variation margin.

If the mark to market price is lower than the purchase price, i.e. the holder of a future is making a loss, she must top up the margin account to the proportionate level it was.

If a holder makes a profit, a credit to the margin account is made

If a holder of a future makes a loss and is unable to top up the margin account, the exchange will “close the member out”. The loss is then deducted from the client’s margin account balance, and he is paid out.

5.3.3 Open interest

Open interest refers to the number of **outstanding** (not open) contracts of a contract i.e. the number of contracts that are still open and obligated to delivery (physical or cash settlement).

Double counting is avoided in the number. If broker-dealer A takes a position in a future and B takes the opposite position, open interest is equal to 1.

At launch and on maturity open interest is 0.

5.3.4 Payoff with futures (risk profile)

The gains and losses on futures are symmetrical around the difference between the spot price on expiry of the futures contract and the futures price at which the contract was purchased.

Payoff long position = spot price – futures price

Payoff short position = futures price – spot price

This is total payoff because nothing was paid for the contract – margin deposit with interest is repayable in full.

5.3.5 Pricing of futures

The fair value price is a theoretical price that differs from the trading price, but give an indication of where the trading price should head towards

The fair value price considers the following:

- Current (or “spot”) price of the underlying asset
- Financing (interest) costs involved
- Cash flows (income) generated by the underlying asset
- Other costs such as storage costs and insurance premiums

The formula for calculation the fair value price is as follows -formula 13 last line only:

$$\text{Fair value price} = \text{spot price} \times [1 + ((\text{risk free rate} - \text{interest}) \times \text{time})]$$

Example

Calculate the fair value of the ALSI contract given the following:

- Spot price (SP) = 15 357
- Risk free rate (rfr) = 8.0% pa
- Assumed dividend yield = 2.0% pa
- Term to maturity of contract = 319 days

$$\begin{aligned} \text{Fair value price} &= 15357 \times (1 + ((0.08 - 0.02) \times (319/365))) \\ &= R16 162.30 \end{aligned}$$

5.3.6 Short-term interest rate future

In the case of short-term interest rate futures, the theoretical price or fair value price (FVP) is determined from the calculated forward-forward rate (which is also called the implied forward rate). – Formula 2

Example

A client wishes to buy a 3-month JIBAR future in 3 months' time, calculate the fair value price given that the spot rate for three months is 9% p.a. and the six-month rate is 10.5% p.a. (assume 3 month = 91 days and 6 months is 182 days)

$$\begin{aligned} \text{Implied forward rate} &= \\ &= \left[\frac{1 + (\text{interest rate long period} \times \text{long period exp})}{1 + (\text{interest rate short period} \times \text{short period exp})} - 1 \right] \times \frac{365}{\text{days long period} - \text{days short period}} \end{aligned}$$

$$\begin{aligned}
&= (((1 + (0.105 \times 182/365)) / (1 + (0.09 \times 91/365))) - 1) \times (365 / (182 - 91)) \\
&= 0.1173 \times 100 \\
&= 11.74\%
\end{aligned}$$

5.3.7 Individual bond futures

The principle that underlies the fair value price of a bond future is the net carry cost principle [carry cost (rfr) less income]

The fair value price (FVP) of an individual bond future is made up of :

$$\text{FVP} = \text{Investment (all-in) price} + \text{carry cost} - \text{income}$$

$$\text{Carry cost} = \text{all in price} \times [\text{risk-free rate} \times ((\text{termination date} - \text{purchase date}) / 365)]$$

$$\begin{aligned}
&\text{Income if in cum interest} \\
&= \frac{\text{Coupon}}{2} \times \left(1 + (\text{risk free rate} \times \frac{\text{termination date future} - \text{coupon date 1}}{365}) \right)
\end{aligned}$$

$$\begin{aligned}
&\text{Income if ex interest} \\
&= \frac{\text{Coupon}/2}{1 + \left(\text{risk free rate} \times \left(\frac{\text{coupon date 2} - \text{termination date future}}{365} \right) \right)}
\end{aligned}$$

- Cum interest = period in between coupon date 1 and book close date
- Ex interest = period in between book close date and coupon date 2
- Cum interest is applicable if termination date is before the register close date
- Ex interest is applicable if termination date is after the register close date

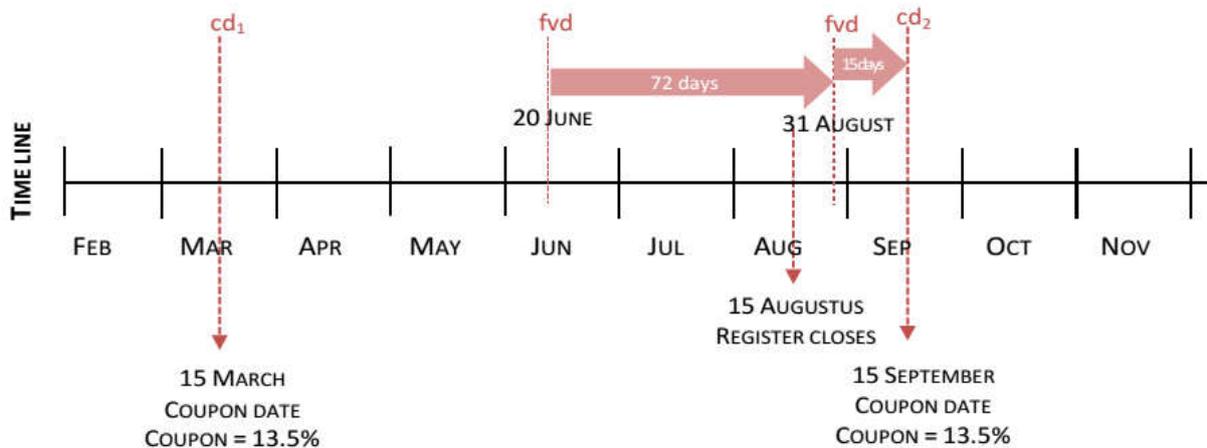
Example

Calculate the fair value price of an individual bond future given the following:

- Maturity date: 15 September 2015
- Coupon: 13.5% p.a.
- Coupon payment dates: (cd1 and cd2): 15 March and 15 September
- Yield to maturity (ytm): 8.2%
- Carry cost (=rfr): 7.5%
- Purchase (valuation) date of future (fvd): 20 June
- Termination date of future (ftd): 31 August
- Books (register) closes: One month before coupon dates
- All in price: 105.71

The time lines of the bond can be depicted graphically as follows:

Figure 5.4: Timelines of bond event dates



$$\text{All in price} = 105.71077$$

$$\text{Carry cost} = \text{all in price} \times [\text{risk-free rate} \times ((\text{termination date} - \text{purchase date}) / 365)]$$

$$= 105.70177 \times ((0.075 \times 72 / 365) = 1.5638$$

$$\text{Income of ex interest} = (\text{coupon} / 2) / [1 + (\text{risk-free rate} \times ((\text{coupon date}_2 - \text{termination date future}) / 365))]$$

$$= (13.5 / 2) / (1 + (0.075 \times 15/365)) = 6.729$$

$$\text{FVP} = \text{Investment (all-in) price} + \text{carry cost} - \text{income}$$

$$= 105.71077 + 1.5638 - 6.72927$$

$$= 100.5454$$

5.3.8 Basis and net carry cost

Carry cost (CC) is the difference between the theoretical or fair value price (FVP) and the spot price (SP) of the underlying asset:

$$\text{Carry cost} = \text{fair value price} - \text{spot price}$$

Basis is the difference between the forward price and the spot price of the underlying:

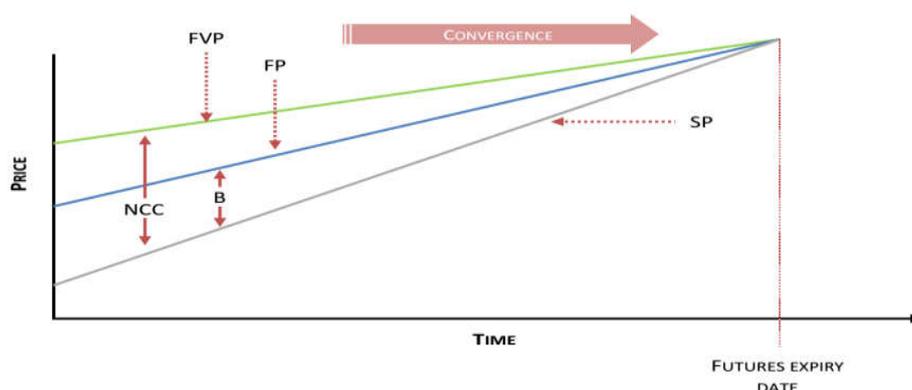
$$\text{Basis} = \text{Spot price} - \text{Forward price}$$

If the fair value price > spot price, then the carry cost is positive – this means that the risk-free rate is greater than the interest on the underlying asset.

When the fair value price < spot price, then the carry cost is negative – this means that the risk-free rate is smaller than the interest on the underlying asset.

When carry cost is negative the basis is positive.

Figure 5.5: Basis and net carry cost



What is the significance of basis?

It is that the basis is a known number when a hedge is undertaken (buy the underlying and sell the future or sell the underlying and buy the future). If the basis changes during the life of the hedge (which is likely), risk (called basis risk) emerges, and the hedge will not be a perfect one, i.e., if the basis strengthens or weakens, the outcome of the hedge will be different from that hoped for or expected.

5.3.9 Participants in the futures market

Participants can be categorised according to functionality:

- *Investors*: Participants that view the futures market as an alternative to the cash market.
- *Arbitrageurs*: Arbitrageurs endeavour to profit from price differentials (mispricing) that may exist in different markets on similar securities. Arbitrageurs play a significant role in the futures market by ensuring that futures prices do not stray too far from fair value prices and by adding to the liquidity of the market.
- *Hedgers*: Hedgers are those participants that have exposures in cash markets and wish to reduce risk by taking the opposite positions in the futures markets.
- *Speculators*: Participants that endeavour to gain from price movements in the futures market by taking a view on the direction in which the market will move. Enhance liquidity in market.

5.4 SWAPS

A swap may be defined as an agreement between counterparties to exchange specific periodic cash flows in the future based on specified prices / interest rates.

The cash flow calculations are made with reference to an agreed notional amount (i.e. an amount that is not exchanged).

5.4.1 Interest rate swaps

An agreement between two parties to exchange a series of fixed rate cash flows for a series of floating rate cash flows in the same currency.

These interest amounts are calculated with reference to a mutually agreed notional amount.

The notional amount is not exchanged between the parties.

Buyer agrees to pay fix rate, not benchmarked but an agreed number.

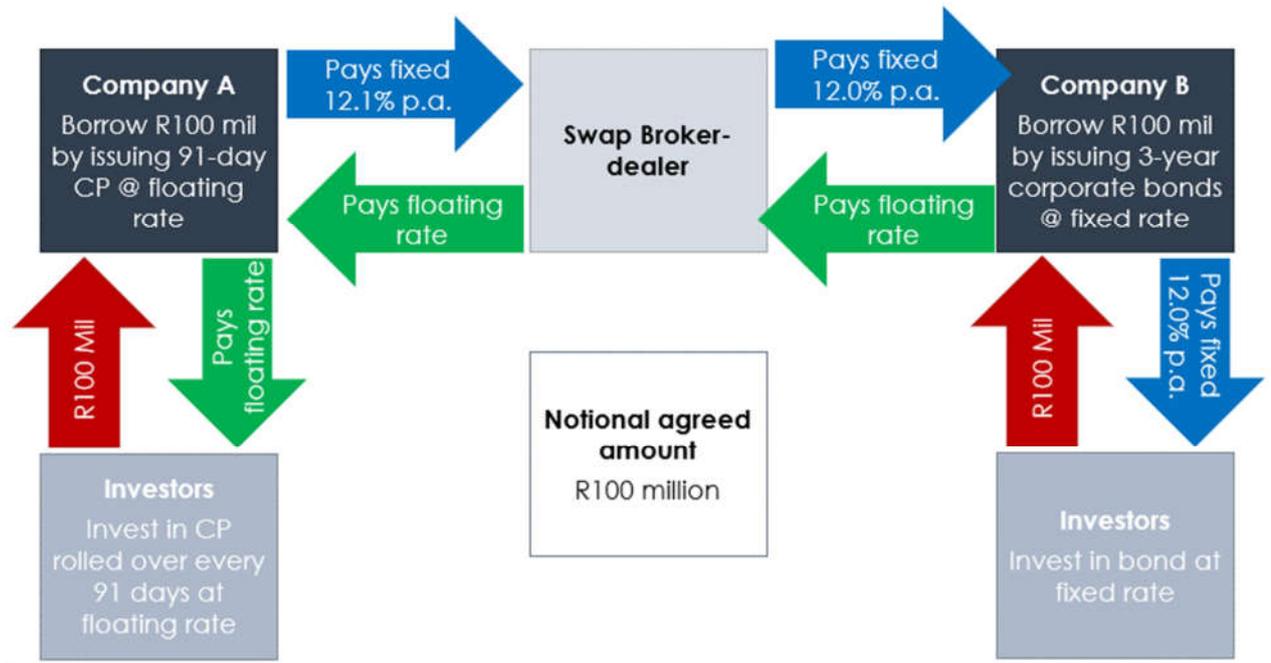
Seller agrees to pay floating rate reference rate is usually JIBAR.

Bank usually act as intermediary otherwise deal rest on integrity of counter parties.

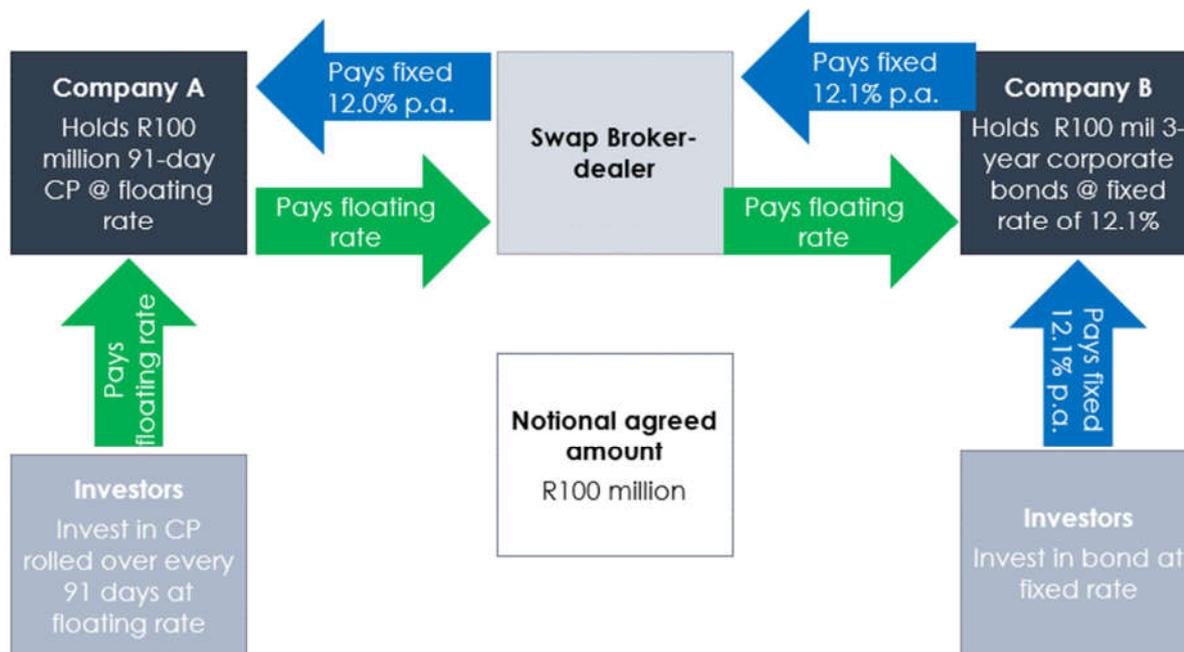
Motivation for interest rate swaps:

- Transforming a liability with use of interest rate swap
- Transforming an asset with use of interest rate swap
- Comparative advantage

I) Transforming a liability with use of interest rate swap



II) Transforming an asset with use of interest rate swap



III) Comparative advantage

The comparative advantage motivation for a swap deal rests on the existence of a differential in borrowing rates in different markets

Rating	Company	3-year fixed rate (bond market)	Floating rate (money market)
AAA	Company A	11.0%	6-month JIBAR +0.0%
BBB	Company B	12.0%	6-month JIBAR +0.5%
Difference (B – A)		+1.0%	+0.5%

Company A has absolute advantage in both markets – borrows at lower rate in both markets.

Company B has the comparative advantage in the money market as it is penalized to a lesser extent.

Company A borrows for 1% lower (instead of 0.5%) in the bond market, and thus have the comparative advantage in the bond market.

But now Company A wants to borrow floating and Company B wants to borrow fix.

IV) Settlement amount

Usually the parties will just pay the difference between the floating and the fixed rate. The settlement amount is calculated as follows:

$$\text{Settlement amount} = \text{Notional amount} \times \text{interest rate differential} \times \text{time}$$

Remember buyer pays fix interest rate and seller pays floating interest rate; i.e. if agreed rate > reference rate; buyer will pay seller or bank that difference.

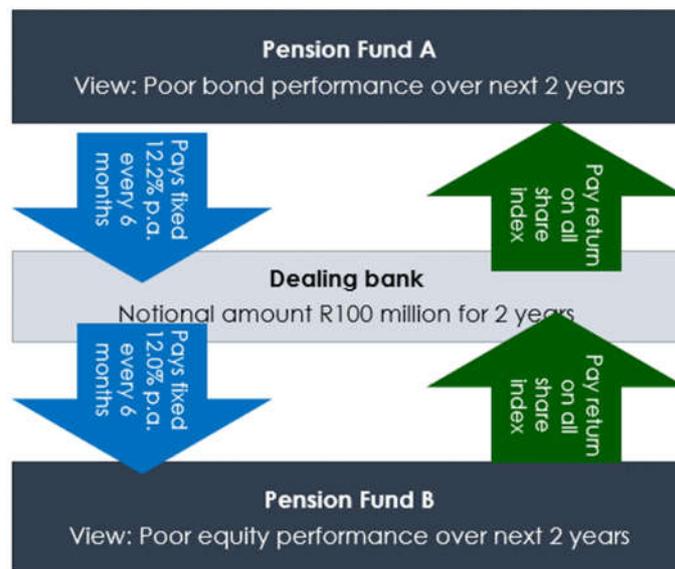
V) Variations on the theme

- *Basis swap*: A swap where two floating rates are swapped.
- *Amortising swap*: A swap with a notional value that reduces over the life of the swap in a predetermined way.
- *Accreting swap (also called step-up swap)*: A swap in terms of which the notional amount increases in a predetermined manner during the term of the swap.
- *Roller-coaster swap*: A swap in terms of which the notional amount increases and decreases during the term of the swap.
- *Deferred swap (also called forward start swap)*: A swap where the counterparties do not start exchanging interest payments until a future date.
- *Extendable swap*: A swap where one party has the option to extend the life of the swap beyond the term of the swap, according to predetermined conditions.
- *Puttable swap*: A swap where one party has the option to terminate the swap prior to maturity date, according to predetermined conditions.
- *Constant maturity swap*: A swap where a floating rate (for example LIBOR) is exchanged for a specific rate (for example the 10-year rate on government bonds).
- *Index amortizing rate swap (also called indexed principal swap)*: A swap where the notional amount reduces in a way that is dependent on the level of interest rates.
- *Timing-mismatched swap*: A swap with a timing mismatch.

5.4.2 Equity swap

An equity swap is a fixed-for-equity swap. It is like the conventional interest rate swap in terms of a term to maturity, notional principal amount, specified payment intervals and dates, fixed rate and floating rate. The difference lies therein that the floating rate is linked to the return on a specified share index (usually total return)

Figure 5.6: Equity Swap



5.4.3 Commodity swap

Commodity swaps are where parties exchange fixed for floating prices on a stipulated quantity of a commodity.

Example

A South African producer of platinum wishes to fix a price on part of its production (20 000 ounces), because it is of the opinion that the price of platinum is about to fall (wants to *receive fixed*, i.e. a fixed price, and *pay floating*, i.e. the spot rate)

On the other hand, a manufacturer of jewellery in Italy believes that the price of platinum is about to rise sharply (wants to *pay fixed*, i.e. fixed price, and *receive floating*, i.e. spot price).

An on-the-ball intermediary bank spots this difference of opinion and puts together the following deal (spot price at inception of the deal is USD 1 529 per ounce): The bank offers the mine a fixed price of USD 1 528 per ounce for the next 2 years, payable monthly, in exchange for monthly payments of the average spot rate for the preceding month.

The bank offers the jewellery manufacturer monthly payments of the average spot rate for the preceding month, in exchange for a fixed price of USD 1 530 per ounce for the next 2 years, payable monthly.

Both parties cannot believe their good fortune and accept the deal. The banker is also pleased.

It will be apparent that if the platinum price falls, the mine will be extremely pleased, because it receives the ever-declining price on the spot market and pays this to the intermediary bank. In exchange the miner receives the fixed price of USD 1 528 per ounce.

The jewellery manufacturer, on the other hand, will be smarting because it is paying floating in the spot market and receiving this same amount, while paying a fixed price that is increasingly higher than the spot price.

5.5 OPTIONS

An option bestows upon the holder the right, but not the obligation, to buy or sell the asset underlying the option at a predetermined price during or at the end of a specified period.

Buyer holds the long position and is also known as the holder.

Buyer has right to buy or sell underlying.

Buyer has unlimited upside potential, but loss is limited to premium.

Seller holds short position and is known as the writer.

Seller has obligation to buy or sell underlying if option is exercised

Seller has unlimited downside potential and gain is limited to premium.

The following terminology are used in options:

- Call option: Gives buyer the right to buy underlying.
- Put option: Gives buyer the right to sell underlying.
- Exercise / strike price: Specified price at which underlying can be bought or sold.
- Exercise option: To put into effect the right to buy or sell.
- Premium: Price paid by the buyer to sell for option.
- An uncovered or naked short call is: The writer does not have a position in the underlying instrument, i.e. is not holding the underlying instrument in portfolio.
- Covered short call: Where the writer does have a matching position in the underlying asset, he is covered.

5.5.1 Pay-off profile

Table 5.2: Effect of change in price of underlying on gain or loss

Position	Change in price of the underlying instrument	Gain or loss
Call option: Holder (long call)	Depreciate (fall)	Loss: premium only
	Appreciate (rise)	Gain: unlimited
Call option: Writer (short call)	Depreciate (fall)	Gain: premium only
	Appreciate (rise)	Loss: unlimited
Put option: Holder (long put)	Depreciate (fall)	Gain: unlimited
	Appreciate (rise)	Loss: premium only
Put option: Writer (short put)	Depreciate (fall)	Loss: unlimited*
	Appreciate (rise)	Gain: premium only

5.5.2 Variety of options

An American option bestows the right upon the holder to exercise the option at any time before and on the expiry date of the option.

A European option gives the holder the right to exercise the option only on the expiry date of the option.

A Bermudan option is an option where early exercise is restricted to certain dates during the life of the option.

Most of options traded locally and internationally is American options

5.5.3 Premium/price of option

$$\text{Price} = \text{intrinsic value} + \text{time value}$$

1) Intrinsic value

Intrinsic value (IV) is difference between spot price and exercise price of underlying

$$\text{Intrinsic value} = \text{SP} - \text{EP (call options); positive when SP} > \text{EP}$$

$$\text{Intrinsic value} = \text{EP} - \text{SP (put options); positive when EP} > \text{SP}$$

Only in-the money options have intrinsic value.

- For a call option this is Spot price (SP) > Exercise price (EP).
- For a put option this is Spot price (SP) < Exercise price (EP).

Out-of-the-money and at-the-money options have no intrinsic value.

Table 5.3: Pay-off profiles

ITM/ATM/OTM	Call options		Put options	
In-the-money	SP > EP	IV > 0	SP < EP	IV > 0
At-the-money	SP = EP	IV = 0	SP = EP	IV = 0
Out-the-money	SP < EP	IV = 0	SP > EP	IV = 0

II) Time value

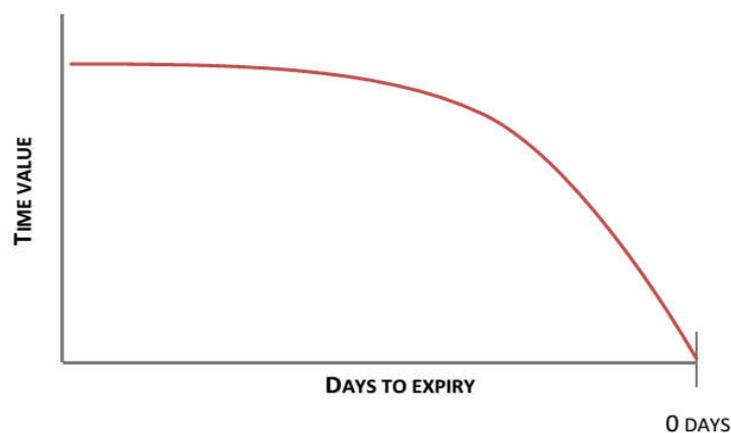
The time value (TV) of an option is the difference between the premium (P) of an option and its intrinsic value (IV):

$$\text{Price (premium)} = \text{Intrinsic value} + \text{Time value}$$

$$\text{Time value} = \text{Price} - \text{Intrinsic value}$$

As an option moves towards the expiration date, time value diminishes, and that at expiration time value is zero.

Figure 5.7: Time value of money



Example

Calculate the intrinsic value and time value for a call option if the spot price is R70, premium R12 and the exercise price R60.

$$\begin{aligned} \text{Intrinsic value (IV)} &= \text{SP} - \text{EP} \\ &= \text{R70} - \text{R60} \\ &= \text{R10} \end{aligned}$$

$$\begin{aligned} \text{Time value (TV)} &= \text{P} - \text{IV} \\ &= \text{R12} - \text{R10} = \text{R2} \end{aligned}$$

5.5.4 Option valuation/pricing

There are two main option pricing / valuation models that are used by market participants:

- Black-Scholes model.
- Binomial model.

Two other models that also get used is the -

- Monte Carlo simulation
- Finite difference methods (implicit finite difference and explicit finite difference method).

I) Black Scholes model

The Black-Scholes model was first published in 1973 and essentially holds that the fair option price (or premium) is a function of the probability distribution of the underlying asset price at expiry.

Effect of elements on price of call or put option according to Black Scholes is outlined in the table below.

Figure 5.8: Effect of elements on price of option

	Call option	Put option
Spot price of underlying	Positively related	Negatively related
Risk-free-rate	Positively related	Negatively related
Expected dividend	Negatively related	Positively related
Volatility	Positively related	Positively related
Time to expiration	Positively related	Positively related

From this the following can be deduced:

- Call options are therefore more valuable as the spot price of the underlying asset increases and less valuable the higher the exercise price is.
- Put options are therefore more valuable as the spot price of the underlying asset decreases and less valuable the lower the exercise price is.
- The longer the time to expiration the more valuable both call and put options are.
- A long-term option must at least equal the value of a short-term option with similar characteristics.
- The value of put options decreases as the risk-free rate increases.
- The value of call options increases as the risk-free rate increases.
- The value of call options is negatively related to the size of the expected dividend.

- The value of put options is positively related to the size of the expected dividend.
- Volatility is the extent of variance in the underlying asset price.
- Both puts, and calls increase in value as volatility increases
- Price volatility is the measure of uncertainty in respect of returns on the asset
- Implied volatility is the volatility implied by the option price observed in the market.
- Implied volatilities are derived from actively traded options and are used to make comparisons of option prices.

The Black-Scholes model is regarded as a good valuation model for European options on commodities.

The Black-Scholes model is regarded as less accurate for dividend paying options and particularly so if the option is of the American variety.

The Black-Scholes model tends to undervalue deep in-the-money options.

Another problem of the Black-Scholes model is the assumption of log normality of future asset prices.

II) Binomial model

The Black-Scholes model is regarded as a good valuation model for certain options, particularly for European options on commodities. However, it is regarded as less accurate for dividend paying options and particularly so if the option is of the American variety. Also, it tends to undervalue deep- in-the money options. Another problem is the assumption of log normality of future asset prices.

Where the Black-Scholes is regarded as weak, the binomial model is used.

This model involves the construction of a *binomial tree*, i.e., a diagram representing different possible paths that may be followed by the underlying asset over the life of the option.

III) Greeks – different measures of risk in option positions

In the derivatives market reference is often made to the Greek letters, known as the "Greeks". The "Greeks" measure different dimensions of risk in option positions as tabled.

Table 5.9: Risk in option positions

Delta	The rate of change of the option price with respect to the price of the underlying asset
Theta	The rate of change of the portfolio value with respect to the passage of time – time decay of portfolio
Gamma	The rate of change of the portfolio's delta with respect to the price of the underlying asset .
Vega	Is the rate of change of the value of the portfolio with respect to the volatility of the underlying asset ?
Rho	The rate of change of the portfolio value with respect to the interest rate.

5.5.5 Put call parity

The premium of an European call option gives the fair price of an European put option with the same strike price, expiration date and underlying and vice versa.

$$\text{Call price} + \frac{\text{strike price}}{(1 + \text{interest rate})^t} = \text{underlying price initial} + \text{put price}$$

Example

Calculate the put price for an option given the following:

- Price / premium = R15
- Strike price (call & put) = R20
- Interest rate = 7%
- Time = 6 months
- Underlying price = R18

$$(15 + (20 / ((1 + 0.07)^{0.5})) - 18 = 16.33$$

5.5.6 Options on derivatives

Options are available on virtually all futures, and most of these options are exchange-traded.

In some markets OTC options on futures also exists.

The can-do option is a hybrid of an exchange listed option and an OTC option in that it is listed but has the flexibility of an OTC option

Options are not found on all swaps, but only on the interest rate swap; called a swaption

A call swaption imparts the right to the holder to receive the fixed rate in exchange for the floating rate, while in put swaptions, the holder has the right to pay fixed and receive floating.

5.5.7 Options on futures

Options on futures contracts are subject to margining requirements

Mostly cash settled.

Remember ALSI is R10 time the index value.

Premium need to be translated to index points.

Example

An investor requiring a general equity exposure to the extent of R1 million decides to acquire this exposure through the purchase of call options on the ALSI future. If the index is currently recorded at 5 000 and premium is R150 per contract. Calculate total profit or loss if the price of the index at expiry is 5 400.

$$\text{Remember: Number of contracts} = 1\,000\,000 / R10 / 5000 = 20$$

$$10 \times 20 \times (5400 - 5150) = R50\,000$$

5.5.8 Options on money market instruments

Options on specific money market instrument are written.

The price of options is quoted as points.

Points can be translated to price $9400 = 94.00\%$

Price can be translated to interest rate $100 - 94.00\% = 6\%$

Tick value of contract = basis point.

Basis point value = contract size X 0.0001 X time of contract

Premium is expressed as %.

Premium value = basis point value X Premium % (not as unit of 1)

Example

Consider the June 3 month call option below and calculate the profit for the holder.

- Contract size = GBP500 000
- Strike price = 9 350
- Premium = 0.09
- Expiry price = 9 450

This means that the holder of the call has the right to make a deposit of GBP 500 000 at an interest rate of 6.5% (100 – 93.5) for 3 months.

Each tick movement (one basis point 0.01%) is worth R12.50 = 500 000 X 0.0001 X 0.25 (3 months) = 12.50

The cost of the call option (premium) is 9 X 12.5 = 112.50

If by expiry the contract price rise to 9 450 (interest rates fall to 5.5%) the holder is entitled to a gain of 100 basis points

Profit is 100 X 12.50 less premium of 112.50 = GBP 1 137.5

5.5.9 Options on bond instruments

I) OTC Bond options

In the OTC options markets, the contracts are generally standardised (in most respects).

Options are written on the most marketable short- and long-term bonds, which are the high-capitalisation bonds.

The OTC bond options written and traded are of the standardised and American variety.

European options are also written from time to time, and there are also non-standardised options.

II) Bond warrant: call option

When a bond warrant (call option) is exercised, this leads to the issuer issuing new bonds.

The term to expiry of bond warrants (call options), unlike normal options, is long, sometimes running for many years. The underlying bond also has a long term to maturity, usually 10 years or longer.

This warrant-type does not exist in South Africa.

III) Bond warrants: retail options

In South Africa, however, the term “bond warrant” refers to ordinary options on specific bonds, but they are retail options, i.e. the denominations are small.

A call does not lead to the issue of new bonds.

The issuer of bond warrants is an entity, usually a bank, which is not associated with the issuer of the underlying bond

Bond warrants are listed on the JSE and are traded and settled with members of the JSE.

IV) Callable and puttable bonds (bonds with embedded options)

Callable bond: Provisions that allow the issuer to repurchase the bond at a pre-specified price/rate at certain dates in the future.

Puttable bond: Provisions that allow holder to sell back to the issuer the bond at a pre-specified price/rate at certain dates in the future.

It is usual that callable bonds are not callable for some years after issue.

These bonds are issued and trade at lower yields (higher price) than equivalent term and rated bonds without such options attached.

V) Convertible bonds

Convertible bonds are bonds that are convertible into shares (ordinary or preference) at the option of the holder on pre-specified

5.5.10 Options on equity

I) Options on specific equities

There are many exchanges in the US and the UK (and other markets including the JSE) that list and trade options on specific equities.

Such options are usually written on the shares that have a large market capitalisation and are well traded (i.e. liquid).

II) Options on equity indices

The options on indices markets of the world are also large and active.

The size of a share index option is equal to the index value

5.5.11 OPTIONS ON COMMODITIES

The commodities options markets are also large markets internationally, but they fade into the background when compared with the options on financial instruments markets.

Options are written on all the larger commodities, such as gold, oil, wheat, maize, soybean, and certain commodity indices such as the AMEX oil index.

The commodity options markets are both formalized and OTC.

There exists a retail market: commodity reference warrant (CoRWs) in South Africa. They are available in puts and calls.

5.5.12 Option strategies

I) Straddle

The straddle is generally put into place when an investor believes that the price of the underlying is about to “run” but she is uncertain of the direction.

The straddle involves the purchasing of a call and a put at the same strike price and expiration date.

If prices are not volatile the holder may lose heavily because she is paying a much higher premium than is usually the case.

II) Strangle

The strangle involves the purchasing of a call and a put at the same expiration date but with different exercise prices

5.5.13 Delta hedging

Delta measures how much the price of an option changes with a small change in the price of the underlying

An options strategy that aims to reduce the risk associated with price movements in the underlying asset of the option position by going long or going short the underlying.

To hedge a long position in spot – long put option / short call.

To hedge a short position in spot – short put option / long call option.

Use hedge ratio to determine how many option contracts to buy.

Hedge ratio = 1 / delta

Example

What strategy must an investor that hold 30 000 ABC shares follow to delta hedge the portfolio. The options available has a delta of 0.75 and contract size of 1 000 shares.

$$\begin{aligned} \text{Hedge ratio} &= 1 / 0.75 = 1.3333 \\ (30000 \times 1.3333) / 1000 &= 40 \text{ long put options} \end{aligned}$$

5.6 OTHER DERIVATIVE INSTRUMENTS

5.6.1 Securitisation

The products of securitisation may also be “derivatives” because they and their prices are derived from debt or other securities that are placed in a legal vehicle such as a company or a trust.

Securitisation amounts to the pooling of certain non-marketable assets (e.g. mortgage bonds) that have a regular cash flow in a legal vehicle created for this purpose (called a special purpose vehicle or SPV) and the issuing by the SPV of marketable securities to finance the pool of assets.

The regular cash flow generated by the assets in the SPV is used to service the interest payable on the securities issued by the SPV.

For the banks, securitisation amounts to the taking of assets off balance sheet and freeing up capital

For companies, securitisation presents an alternative to the traditional forms of finance

A portfolio manager manages the SPV, and trustees appointed in terms of the scheme monitor the process on behalf of the investors.

The AAA rated paper, as noted, is sold to the market, while the BBB paper is usually purchased by one of the sponsors at an excellent rate of interest.

The management company usually holds the unrated paper in portfolio.

5.6.2 Credit derivatives

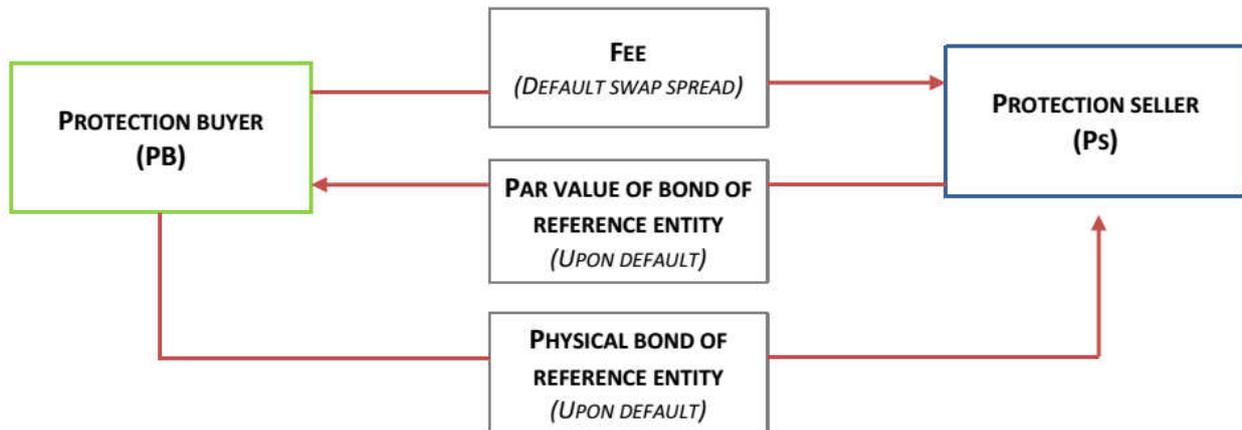
A contract where the payoffs depend partly upon the creditworthiness of one or more commercial or sovereign entities

1) Credit default swap

A credit default swap is a bilateral contract between a protection purchaser and a protection seller that compensates the purchaser upon the occurrence of a credit event during the life of the contract.

For this protection the protection purchaser makes periodic payments to the protection seller. The credit event is objective and observable, and examples are: default, bankruptcy, ratings downgrade, and fall in market price.

Figure 5.10: Credit default swap



As noted, the fee is payable until maturity of the bond or until default. If default takes place, the protection buyer has the right to sell the bond to the protection seller at par value. It is then up to the protection seller to attempt to recover any funds from the defaulting bond issuer.

Pricing

The pricing of credit derivatives is straightforward.

Fee payable on swap is known as the default swap spread

$$\text{Default swap spread} = \text{risk premium} = \text{yield to maturity} - \text{risk free rate}$$

Example

Company ABC enters into a contract with Bank A where has the right to sell a bond with a yield of 9.2% to the bank if the issuer of the bond defaults. Calculate the default swap spread if the current repo rate is 7.4% and the risk-free rate is 6.9%.

$$= 9.2\% - 6.9\% = 2.3\%$$

II) Weather derivative contract

A weather derivative is a financial instrument whose value depends on the value of some underlying variable(s), in this case a weather index such as heating degree-days, cooling degree-days, average temperature or millimeters of precipitation

The most common is contracts based on degree days.

A degree-day is the absolute value of the difference between the average daily temperature and 18°C. The winter measure of average daily temperature below 18°C is called heating degree days (HDDs), and the summer measure of average daily temperature above 18°C is termed cooling degree days (CDDs). Weather derivative contracts are executed in a fashion as instruments such as caps, floors, collars, swaps, etc. and are settled in the same way as these.

- Caps (also known as call options) establish a DD ceiling. The holder is compensated for every DD above the ceiling up to a maximum amount.
- Floors (also known as put options) establish a DD minimum. The holder is compensated for every DD below the floor up to a maximum amount.
- Collars or swaps establish a DD ceiling and a DD floor. The holder is compensated for every DD above the ceiling or below the floor.

The primary objective of weather derivatives is thus to hedge volume risks, rather than price risks, that result from a change in the demand for goods due to a change in weather.

Weather derivatives are struck close to the mean to cover non-catastrophic events and unlike insurance they are contracts of difference, not a contract of indemnity.

Weather derivatives are not insurance contracts and are not linked to your actual loss. You may or may not suffer loss because of a certain weather event occurring. Any payout you receive pursuant to a weather derivative will be unrelated to whether you have suffered loss or the extent of any loss.

The counterparties to the hedgers use data supplied by independent organisations such as the weather service data stations located at major airports.

III) Insurance derivatives

Insurance derivatives have payoffs that are dependent on the amount of insurance claims of a specified type made during the period of the contract.

IV) Electricity derivatives

Electricity derivatives have payoffs that are dependent on the spot price of electricity.

5.7 THE ROLE OF DERIVATIVES IN AN INVESTMENT PORTFOLIO

Derivatives have a wide range of applications and many different roles within an investment portfolio. Typically, derivatives are used as part of the risk management process. The classic example would be a farmer who needs to sell his produce and a distributor who is looking to buy the produce. The farmer can decide to wait until his produce is ready and sell it at the current market price. Likewise, the distributor can purchase the produce at the market price when needed. However, as market price fluctuates, both parties may feel the need to fix the price for future delivery.

An investor who wishes to diversify his portfolio offshore may not be comfortable with the additional volatility introduced by exchange-rate fluctuations. The investor will be able to hedge out the currency risk by using derivative instruments.

Hedge funds employ derivative instruments as part of their investment strategy. This may include the use of leverage to increase exposure to a position or selling a position short (selling an asset which you don't have) with the intention to acquire it at a lower price in future and thereby profiting from the decline in the asset's price.

5.8 TYPICAL FEES INVOLVED WITH DERIVATIVE INSTRUMENTS

The services of a derivatives broker, who is registered with the JSE, are required in order to trade derivatives. Brokers charge a commission or brokerage fee for facilitating trades. The fee will vary between brokers and is usually lower for institutional clients who trade in larger volumes.

TOPIC 6 COLLECTIVE INVESTMENT SCHEMES

LEARNING OUTCOMES

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

- Explain the general characteristics, terms and features of financial products in the class of business and any specialist characteristics, terms and features in respect of collective investment schemes.
- Explain the typical fee structures, charges and other costs associated with collective investment schemes.
- Explain the general risks associated with investing in, purchasing or transacting in collective investment schemes.
- Explain the impact of applicable legislation, including taxation laws, with regard to collective investment schemes.

6.1 INTRODUCTION

Collective investment schemes (CISs) is a generic term for any scheme where funds from various investors are pooled for investment purposes with each investor entitled to a proportional share of the net benefits of ownership of the underlying assets. A CIS consists of the following:

- Pooling of resources to gain sufficient size for portfolio diversification and cost-efficient operation
- Professional portfolio management to execute an investment strategy.

A portfolio of a collective investment scheme is essentially a pool of funds created through the contributions of a number of investors. The pool of funds (the portfolio) is managed by a professional manager who, depending on the mandate of the collective investment scheme will use the contributions of the investors to invest in listed shares, cash, property, bonds or other securities.

In exchange for their contribution to a portfolio of a CIS each investor receives a participatory interest in that portfolio which may be referred to either as shares or as units and which represent the investor's proportionate interest in the assets of the portfolio. The value of the investor's participatory interest in the portfolio will therefore increase or decrease in proportion to the increase or decrease in the value of the underlying assets held in the portfolio.

A single CIS could, based on the above definition, include more than one portfolio of underlying assets. The different portfolios within a scheme may represent different investment strategies of the manager of the scheme, may have different risk profiles or may be differentiated in terms of the types of assets included in the portfolio.

The proportionate ownership of the underlying assets in a portfolio of a CIS is one of the main advantages and attractions of investing in a CIS as it enables 'ordinary' investors to achieve a diversity of investment which would not otherwise be possible without vast amounts of investment capital.

6.1.1 Advantages of investing in a collective investment scheme

CISs make it possible for investors, including small savers, to obtain diversified investment portfolios with professional management at reasonable cost and to execute a widening range of investment strategies. In other words, the main benefits of CISs are:

- Diversification i.e., spreading the risk of investing over a range of investments
- Professional expertise to manage investors' portfolios
- Reasonable cost due to reduced dealing costs due to bulk transacting and cost-effective administration
- Choice in that there are increasing numbers of alternative funds from which to choose.
- Tax effective

In addition, CISs generally exist in a set of legal, institutional and market-based safeguards to protect the interests of investors.

6.1.2 Disadvantages of investing in a collective investment scheme

The disadvantages of investing in CISs are generally held to be as follows:

- Costs in respect of funds management and advice could be avoided if investors managed their own investments. This assumes investors have the expertise to so self-manage their investments.
- Although investors have a large variety of funds to choose from, they have no control over the choice of individual holdings within their portfolios.
- Investors have none of the rights associated with individual holdings e.g. right to attend the annual general meeting of a company and vote on issues impacting the company.

6.2 ROLE PLAYERS INVOLVED IN A COLLECTIVE INVESTMENT SCHEME

The main role-players, who will be discussed hereunder, are as follows:

- The manager
- Investment administrator
- The trustee/custodian
- The auditor

6.2.1 The manager

The manager is responsible for the whole operation of the collective investment scheme. These responsibilities and duties include the following:

- Marketing, investment management and administration of the collective investment scheme.
- Fulfilling statutory requirements.
- Maintaining adequate financial resources to meet its commitments.
- Managing the risks to which the collective investment scheme is exposed.
- Organising and controlling the collective investment scheme in a responsible manner.
- Maintenance of records.
- Communicating with investors.

6.2.2 Investment administrators

Investment administrative activities may include the following:

- Calculating the net asset value (NAV). This includes calculating the fund's income and expense accruals and the pricing of securities at current market value
- Preparing half-yearly and annual reports for shareholders
- Maintaining the financial books, including reconciliation of holdings with custody and broker records
- Paying the fund expenses
- Settlement of daily purchases and sales of securities, ensuring collection of dividends and interest
- Calculating and paying dividends and distributions to the transfer agent
- Preparing and filing the fund's prospectus
- Calculating the total returns and other performance measures of the fund.

6.2.3 The trustee/custodian

The Collective Investment Schemes Control Act (CISCA) also requires the appointment of a trustee who ensures that the fund is managed in accordance with the deed or the document in terms of which the trust was established.

In terms of CISCA, the trustee must be a legal 'person'; this is usually a bank, public company or an insurance company.

The relationship between the manager and the trustee is based on an agreement to establish a collective investment scheme. Under the scheme, they will create one or more separate portfolios through supplemental deeds approved by the FSB. The trustee acts on the unitholders' behalf by ensuring that the management group keeps to the provisions of the deed (particularly in relation to investment objectives) and by ensuring that investments are made in accordance with the mandate.

The manager invests in one or more collective investment scheme portfolios under the control and supervision of the trustee. The trustee holds the assets of the portfolio/s in safe custody.

6.2.4 The auditor

A collective investment scheme manager is required to appoint an auditor for the purpose of auditing the whole of the business of the collective investment scheme administered by it. No director or employee of a manager or trustee/custodian may be appointed as auditor. The auditor must be approved by the Registrar.

The auditor's functions include the following:

- Examining the accounting records and annual financial statements
- Ensuring that financial statements are properly drawn up and that they fairly represent the financial position
- Ensuring that the results of the manager's operations and every collective investment scheme portfolio are in accordance with Generally Accepted Accounting Practice and in the manner required by CISCA
- Reporting any irregularity or undesirable practice in the collective investment scheme administration that has come to his attention during auditing to the manager
- Submitting a copy of the report to the Registrar.

6.3 COLLECTIVE INVESTMENT SCHEME CLASSIFICATION

6.3.1 Open-end versus closed-end

CISs can be categorised as open-end funds or closed-end funds.

- Open-end funds publicly offer their shares or units to investors. Investors can buy and sell the shares or units at their approximate net asset value. The shares can be bought from or sold to the fund directly or via an intermediary such as a broker acting for the fund.
- Closed-end funds offer their shares or units to the investing public primarily through trading on a securities exchange. If closed-end fund investors want to sell their shares, they generally sell them to other investors on the secondary market at a price determined by the market.

6.3.2 Classification according to the Collective Investment Schemes Act

The CIS Act makes provision for five different types of CIS:

- *CISs in securities*: Schemes where the portfolio consists of shares, preference shares, bonds, futures, options, warrants and / or money market instruments.
- *CISs in properties (CISPs)*: Schemes where the portfolio consists of property shares, immovable property and units in CISs in property in a foreign country. CISs in property are listed on the JSE.

- *CISs in participation bonds (CISPBs)*: Schemes where the portfolio consists mainly of participation bonds. CISPBs pool funds received from investors and lend them out by granting first mortgage bonds over commercial, industrial or retail properties. The interest paid on these loans is passed on to participants in regular payments. Thus, CISPBs offer security and an interest income on a regular basis, which is why they are attractive to investors such as retired persons, charities and pension funds.
- *Foreign CISs*: CISs established outside South Africa. A Foreign CIS invites or permits members of the public in South Africa to invest in its portfolios. To carry on business in South Africa a Foreign CIS must obtain approval from the Registrar of Collective Investment Schemes. Only once it is approved, may a Foreign CIS solicit investment from members of the public in South Africa.
- *Declared CISs*: CISs deemed by the Registrar of Collective Investment Schemes to be CISs.

Each type of CIS listed above has specific administrative provisions in the CISCA which apply to it and are each restricted in terms of the type of assets which may be held in the underlying portfolios of the scheme.

6.3.3 ASISA fund classification

The ASISA Standard on Fund Classification for South African Regulated Collective Investment Portfolios (“ASISA Fund Classification Standard”) establishes and maintains a classification system for CIS portfolios in South Africa.

The objectives of the ASISA Fund Classification Standard are as follows:

- Promote investor awareness and understanding of CIS portfolio types.
- Assist with the comparison of CIS portfolios within and across classification categories.
- Assist with the assessment of potential risks of investing in a particular type of CIS portfolio.

The purpose of the ASISA Fund Classification Standard is as follows:

- Ensure that CIS portfolios adhere to the classification category definitions.
- Standardise applications for approval of the classification of a CIS portfolio.
- Facilitate the timeous and appropriate classification and reclassification of CIS portfolios.

The classification uses a three-tiered system:

- Tier 1: Geographic classification
- Tier 2: Asset type
- Tier 3: Investment focus area

This is detailed in the table following.

ASISA fund classification

TIER 1 GEOGRAPHIC	TIER 2 ASSET TYPE	TIER 3 CATEGORY						
SOUTH AFRICA	EQUITY	GENERAL	LARGE CAP	MID & SMALL CAP	RESOURCES	INDUSTRIAL	FINANCIAL	UNCLASSIFIED
	MULTI-ASSET	INCOME	LOW EQUITY	MEDIUM EQUITY	HIGH EQUITY	FLEXIBLE	TARGET DATE PORTFOLIOS	
	REAL ESTATE	GENERAL						
	INTEREST BEARING	VARIABLE TERM	SHORT TERM	MONEY MARKET				
WORLDWIDE	EQUITY	GENERAL	UNCLASSIFIED					
	MULTI-ASSET	FLEXIBLE						
	INTEREST BEARING	VARIABLE TERM	SHORT TERM					
GLOBAL	EQUITY	GENERAL	UNCLASSIFIED					
	MULTI-ASSET	FLEXIBLE						
	INTEREST BEARING	VARIABLE TERM	SHORT TERM					
REGIONAL	EQUITY	GENERAL	AFRICA	UNCLASSIFIED				
	MULTI-ASSET	FLEXIBLE						
	INTEREST BEARING	VARIABLE TERM	SHORT TERM					

Source: www.asisa.com

6.3.4 Classification Category Definitions

I) First tier classification: South African Portfolios

These are collective investment portfolios that invest at least 60% of their assets in South African investment markets. These collective investment portfolios may invest a maximum of 30% of their assets outside of South Africa plus an additional 10% of their assets in Africa excluding South Africa.

Note: For the purposes of this first tier of classification, inward-listed equities are deemed to be South African assets.

The second and third tier classification of this first tier is considered in the subsections following.

Equity portfolios

These portfolios invest a minimum of 80% of the market value of the portfolios in equities and generally seek maximum capital appreciation as their primary goal. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Equity – General portfolios:** These portfolios invest in selected shares across all industry groups as well as across the range of large, mid and smaller market capitalisation shares. While the managers of these portfolios may subscribe to different investment styles or approaches, their intent is to produce a risk/return profile that is comparable with the risk/return profile of the overall JSE equities market. The portfolios in this category offer medium to long-term capital growth as their primary investment objective. SA Benchmark: FTSE/JSE All Share index (J203T)
- **Equity – Large cap portfolios:** These portfolios invest at least 80% of the market value of the portfolios in large market capitalisation shares which have a market capitalisation greater than or equal to the company with the lowest market capitalisation in the FTSE/JSE Large Cap Index, or an appropriate foreign index published by an exchange. 100% of share purchases must be in this investable universe at time of purchase. SA Benchmark: FTSE/JSE Large Cap Index (J205T)
- **Equity – Mid & Small cap portfolios:** These portfolios invest at least 80% of the market value of the portfolios in shares which have a market capitalisation smaller than the company with the lowest market capitalisation in the FTSE/JSE Large Cap Index, or an appropriate foreign index published by an exchange. 100% of share purchases must be in this investable universe at time of purchase. Due to both the nature and focus of these portfolios, they may be more volatile than portfolios that are diversified across the broader market. SA Benchmark: FTSE/JSE Mid Cap index (J201T)

- **Equity - Resources portfolios:** These portfolios invest at least 80% of the market value of the portfolios in shares listed in the FTSE/JSE Oil & Gas and Basic Materials industry groups or in a similar sector of an international stock exchange. Up to 10% of a portfolio may be invested in shares outside the defined sectors in companies that conduct similar business activities as those in the defined sectors. Due to both the nature and focus of these portfolios, they may be more volatile than portfolios that are diversified across a wider range of FTSE / JSE industry groups. SA Benchmark: FTSE/JSE Resources index (J258T)
- **Equity – Industrial portfolios:** These portfolios invest at least 80% of the market value of the portfolios in industrial shares listed on the Johannesburg Stock Exchange or in a similar sector of an international stock exchange. Industrial shares include all companies listed on the JSE other than those shares listed in the FTSE / JSE Oil & Gas, Basic Materials, and Financials industry groups. SA Benchmark: FTSE/JSE All Share Industrials index (J257T)
- **Equity – Financial portfolios:** These portfolios invest at least 80% of the market value of the portfolios in shares listed in the FTSE/JSE Financials industry group or in a similar sector of an international stock exchange. Up to 10% of a portfolio may be invested in shares outside the defined sectors in companies that conduct similar business activities as those in the defined sectors. Due to both the nature and focus of these portfolios they may be more volatile than portfolios that are diversified across a wider range of FTSE / JSE industry groups. SA Benchmark: FTSE/JSE Financials index (J580T)
- **Equity – Unclassified portfolios:** These portfolios invest in a single industry or sector or in companies that share a common theme or activity as defined in their respective mandates. Due to both the nature and focus of these portfolios, they may be more volatile than portfolios that are diversified across the broader market. The performance of these portfolios cannot be compared to others in this category. Should it be considered appropriate, where five or more portfolios focus on a particular theme a new category will be created and the funds transferred.

Multi-asset portfolios

Multi Asset portfolios are portfolios that invest in a wide spread of investments in the equity, bond, money and property markets to maximise total returns (comprising capital and income growth) over the long term. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Multi Asset – Flexible portfolios:** These portfolios invest in a flexible combination of investments in the equity, bond, money and property markets. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolio’s mandate and stated investment objective and strategy. These portfolios may be aggressively managed with assets being shifted between the various markets and asset classes to reflect changing economic and market conditions and the manager is accorded a significant degree of discretion over asset allocation to maximise total returns over the long term.
- **Multi Asset - High Equity portfolios:** These portfolios invest in a spectrum of investments in the equity, bond, money, or property markets. These portfolios tend to have an increased probability of short term volatility, aim to maximise long term capital growth and can have a maximum effective equity exposure (including international equity) of up to 75% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy.
- **Multi Asset - Medium Equity portfolios:** These portfolios invest in a spectrum of investments in the equity, bond, money, or property markets. These portfolios tend to display average volatility, aim for medium to long term capital growth and can have a maximum effective equity exposure (including international equity) of up to 60% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy.
- **Multi Asset - Low Equity portfolios:** These portfolios invest in a spectrum of investments in the equity, bond, money, or property markets. These portfolios tend to display reduced short term volatility, aim for long term capital growth and can have a maximum effective equity exposure (including international equity) of up to 40% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy.
- **Multi Asset – Income portfolios:** These portfolios invest in a spectrum of equity, bond, money market, or real estate markets with the primary objective of maximising income. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy. These portfolios can have a maximum effective equity exposure (including international equity) of up to 10% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio.

- **Multi Asset – Target Date portfolios:** These portfolios invest in a spectrum of equity, bond, money market, or real estate markets where the asset mix changes over time in a predetermined manner as the target date approaches. Due to the change in asset mix over time, portfolios in this category cannot be compared and consequently cannot be ranked.

Interest Bearing Portfolios

Interest Bearing Portfolios are collective investment portfolios that invest exclusively in bond, money market investments and other interest earning securities. These portfolios may not include equity securities, real estate securities or cumulative preference shares. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Interest Bearing - Variable Term portfolios:** These portfolios invest in bonds, fixed deposits and other interest-bearing securities. These portfolios may invest in short, intermediate and long-dated securities. The composition of the underlying investments is actively managed and will change over time to reflect the manager's assessment of interest rate trends. These portfolios offer the potential for capital growth, together with a regular and high level of income. These portfolios may not include equity securities, real estate securities or cumulative preference shares SA Benchmark: JSE/ASSA All Bond index (ALBI).
- **Interest Bearing – Short Term portfolios:** These portfolios invest in bonds, fixed deposits and other interest earning securities which have a fixed maturity date and either have a predetermined cash flow profile or are linked to benchmark yields, but exclude any equity securities, real estate securities or cumulative preference shares. To provide relative capital stability, the weighted average modified duration of the underlying assets is limited to a maximum of two. These portfolios are less volatile and are characterised by a regular and high level of income. SA Benchmark: STeFI Composite index.
- **Interest Bearing - Money market portfolios:** These portfolios seek to maximise interest income, preserve the portfolio's capital and provide immediate liquidity. This is achieved by investing in money market instruments with a maturity of less than thirteen months while the average duration of the underlying assets may not exceed 90 days and a weighted average legal maturity of 120 days. The portfolios are typically characterised as short-term, highly liquid vehicles. SA Benchmark: STeFI 3-month index.

Real Estate Portfolios

Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Real Estate - General portfolios:** These portfolios invest in listed property shares, collective investment schemes in property and property loan stock and real estate investment trusts. The objective of these portfolios is to provide high levels of income and long-term capital appreciation. These portfolios invest at least 80% of the market value of the portfolio in shares listed in the FTSE / JSE Real Estate industry group or similar sector of an international stock exchange and may include other high yielding securities from time to time. Up to 10% of a portfolio may be invested in shares outside the defined sectors in companies that conduct similar business activities as those in the defined sectors. SA Benchmark: FTSE/JSE SA Listed Property index (J253T)

II) Worldwide Portfolios

These are collective investment portfolios that invest in both South African and foreign markets. There are no limits set for either domestic or foreign assets.

The second and third tier classification of this first tier is considered in the subsections following.

Equity portfolios

These portfolios invest a minimum of 80% of the market value of the portfolios in equities and generally seek maximum capital appreciation as their primary goal. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Equity – General portfolios:** These portfolios invest in selected shares from equity markets. They do not subscribe to a particular theme or investment style and will be invested across all market sectors, as well as across the range of large, mid and smaller market capitalisation shares. The portfolios offer medium to long-term growth as their primary investment objective.
- **Equity – Unclassified portfolios:** These portfolios invest in both local and foreign markets, but only in a single industry or sector or in companies that share a common theme or activity as defined in their respective mandates. Due to both the nature and focus of these portfolios, they may be more volatile than portfolios that are diversified across the broader market. The performance of these portfolios cannot be compared to others in this category. Should it be considered appropriate, where five or more portfolios focus on a particular theme a new category will be created and the funds transferred.

Multi-asset portfolios

Multi Asset portfolios are portfolios that invest in a wide spread of investments in the equity, bond, money and property markets to maximise total returns (comprising capital and income growth) over the long term. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Multi Asset – Flexible portfolios:** These portfolios invest in a flexible combination of investments in the equity, bond, money, or property markets. The portfolios have complete or stipulated limited flexibility in their asset allocation both between and within asset classes, countries and regions. No minimum or maximum holding applies to South African or offshore investment. These portfolios are often aggressively managed with assets being shifted between the various markets and asset classes to reflect changing economic and market conditions to maximise total returns over the long term.
- **Multi Asset – Income portfolios:** These portfolios invest in a spectrum of equity, bond, money market, or real estate markets with the primary objective of maximising income. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolio's mandate and stated investment objective and strategy. These portfolios can have a maximum effective equity exposure (including international equity) of up to 10% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio.

III) Global Portfolios

These are collective investment portfolios that invest at least 80% of their assets outside South Africa, with no restriction to assets of a specific geographical country (for example the USA) or geographical region (for example Africa).

The second and third tier classification of this first tier is considered in the subsections following.

- **Equity – General portfolios:** These portfolios invest in selected shares from equity markets. They do not subscribe to a particular theme or investment style and will be invested across all market sectors, as well as across the range of large, mid and smaller market capitalisation shares. The portfolios offer medium to long-term growth as their primary investment objective. Benchmark: MSCI All Countries World index (Total return)
- **Equity – Unclassified portfolios:** These portfolios invest in a single industry or sector or in companies that share a common theme or activity as defined in their respective mandates. These portfolios may invest in selected shares across all sectors of stock exchanges. The performance of these portfolios cannot be compared to others in this category. Should it be considered appropriate, where five or more portfolios focus on a particular theme a new category will be created and the funds transferred.

Multi-asset portfolios

Multi Asset portfolios are portfolios that invest in a wide spread of investments in the equity, bond, money and property markets to maximise total returns (comprising capital and income growth) over the long term. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Multi Asset – Flexible portfolios:** These portfolios invest in a flexible combination of investments in international equity, bond, money, or property markets. The portfolios have complete or stipulated limited flexibility in their asset allocation both between and within asset classes, countries and regions. These portfolios are often aggressively managed with assets being shifted between the various markets and asset classes to reflect changing economic and market conditions to maximise total returns over the long term.
- **Multi Asset - High Equity portfolios:** These portfolios invest in a spectrum of investments in the equity, bond, money, or property markets. These portfolios tend to have an increased probability of short term volatility, aim to maximise long term capital growth and can have a maximum effective equity exposure (including international equity) of up to 75% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy.
- **Multi Asset - Medium Equity portfolios:** These portfolios invest in a spectrum of investments in the equity, bond, money, or property markets. These portfolios tend to display average volatility, aim for medium to long term capital growth and can have a maximum effective equity exposure (including international equity) of up to 60% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy.
- **Multi Asset - Low Equity portfolios:** These portfolios invest in a spectrum of investments in the equity, bond, money, or property markets. These portfolios tend to display reduced short-term volatility, aim for long term capital growth and can have a maximum effective equity exposure (including international equity) of up to 40% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolios mandate and stated investment objective and strategy.

- **Multi Asset – Income portfolios:** These portfolios invest in a combination of equity, bond, money market, property or derivative instruments with the primary objective of maximising income. The underlying risk and return objectives of individual portfolios may vary as dictated by each portfolio's mandate and stated investment objective and strategy. These portfolios may have a maximum effective equity exposure (including international equity) of up to 10% and a maximum effective property exposure (including international property) of up to 25% of the market value of the portfolio.

Interest Bearing Portfolios

Interest Bearing Portfolios are collective investment portfolios that invest exclusively in bond, money market investments and other interest earning securities. These portfolios may not include equity securities, real estate securities or cumulative preference shares. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Interest Bearing - Variable Term portfolios:** These portfolios invest in bonds, fixed deposits and other interest-bearing securities from markets around the world. These portfolios may invest in short; intermediate and long-dated securities. The composition of the underlying investments is actively managed and will change over time to reflect the manager's assessment of interest rate trends. These portfolios offer the potential for capital growth, together with a regular and high level of income. These portfolios may not include equity securities, real estate securities or cumulative preference shares.
- **Interest Bearing – Short Term portfolios:** These portfolios invest in bonds, fixed deposits and other high interest earning securities in international markets, which have a fixed maturity date and either have a predetermined cash flow profile or are linked to benchmark yields, but exclude any equity securities, real estate securities or cumulative preference shares. To provide relative capital stability, the weighted modified duration of the underlying assets is limited to a maximum of two. These portfolios are less volatile and are characterised by a regular and high level of income.

Real Estate Portfolios

Under this the second-tier equity portfolio, the following third tier portfolios are defined:

- **Real Estate - General portfolios:** These portfolios invest in listed property shares, collective investment schemes in property and property loan stock and real estate investment trusts. The objective of these portfolios is to provide high levels of income and long-term capital appreciation. These portfolios invest at least 80% of the market value of the portfolio in real estate shares and may include other high yielding securities from time to time. Up to 10% of a portfolio may be invested in shares outside the defined sectors in companies that conduct similar business activities as those in the defined sectors.

IV) Regional Portfolios

These are collective investment portfolios that give investors at least 80% exposure to assets in a specific country (for example the USA) or geographical region (for example Africa) outside South Africa.

The second and third tier classification of this first tier is considered in the subsections following.

- **Equity – General portfolios:** These portfolios invest in selected shares from equity markets in a specified geographic region. They do not subscribe to a particular theme or investment style and will be invested across all market sectors, as well as across the range of large, mid and smaller market capitalisation shares. The portfolios offer medium to long-term growth as their primary investment objective.
- **Equity – General – Africa Portfolios:** These portfolios invest in selected shares from equity markets in Africa excluding South Africa. They do not subscribe to a particular theme or investment style and will be invested across all market sectors, as well as across the range of large, mid and smaller market capitalisation shares. The portfolios offer medium to long-term growth as their primary investment objective.
- **Equity – Unclassified portfolios:** These portfolios invest in a single industry or sector or in companies that share a common theme or activity as defined in their respective mandates. These portfolios may invest in selected shares across all sectors of stock exchanges. The performance of these portfolios cannot be compared to others in this category. Should it be considered appropriate, where five or more portfolios focus on a particular theme a new category will be created and the funds transferred.

Multi-asset portfolios

Multi Asset portfolios are portfolios that invest in a wide spread of investments in the equity, bond, money and property markets to maximise total returns (comprising capital and income growth) over the long term. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Multi Asset – Flexible portfolios:** These portfolios invest in a flexible combination of investments in regional equity, bond, money, or property markets to maximise total returns over the long term. The portfolios have complete or stipulated limited flexibility in their asset allocation both between and within asset classes, countries and regions. These portfolios are often aggressively managed with assets being shifted between the various markets and asset classes to reflect changing economic and market conditions to maximise total returns.

Interest Bearing Portfolios

Interest Bearing Portfolios are collective investment portfolios that invest exclusively in bond, money market investments and other interest earning securities. These portfolios may not include equity securities, real estate securities or cumulative preference shares. Under this the second tier equity portfolio, the following third tier portfolios are defined:

- **Interest Bearing - Variable Term portfolios:** These portfolios invest in bonds, fixed deposits and other interest-bearing securities from markets in a specified region. These portfolios may invest in short; intermediate and long-dated securities. The composition of the underlying investments is actively managed and will change over time to reflect the manager's assessment of interest rate trends. These portfolios offer the potential for capital growth, together with a regular and high level of income. These portfolios may not include equity securities, real estate securities or cumulative preference shares
- **Interest Bearing – Short Term portfolios:** These portfolios invest in bonds, fixed deposits and other high interest earning securities in international markets, which have a fixed maturity date and either have a predetermined cash flow profile or are linked to benchmark yields, but exclude any equity securities, real estate securities or cumulative preference shares. To provide relative capital stability, the weighted modified duration of the underlying assets is limited to a maximum of two. These portfolios are less volatile and are characterised by a regular and high level of income.

6.3.5 Active vs passive funds

Active fund management means that a professional asset manager/ fund manager makes tactical decisions to buy or sell certain assets in the fund, based on his/ her view of opportunities in the market, in order to try and achieve superior growth in the fund (better growth than the average growth in the market); or to protect investors' capital by losing less value when markets fall, by opting out of certain assets and exposure to certain market sectors.

Passive fund management, on the other hand, means that your fund will simply track the market, which is often represented by a specific index, for example the FTSE/ JSE Top 40 index, which tracks the 40 biggest companies on the Johannesburg Securities Exchange. Passive funds are essentially run by computer and will replicate all of the assets in a particular market, or represented in a particular index, to give you a return that mirrors the return in the market.

This approach is based on the efficient market hypothesis, which proposes that markets are efficient, since investors have free access to information on share prices, companies, social and political environment, etc. and price these factors in already when deciding to buy/ sell shares at certain prices. Therefore, over time, it is virtually impossible to beat the market.

Increasingly, fund managers are also trying to make the best of both worlds using a blended approach, where parts of a portfolio may be passively managed, whilst other parts may be actively managed.

I) Advantages and disadvantages of active fund management

Some advantages of active fund management include the following:

- It can provide peace of mind to the investor, knowing that a knowledgeable person is managing their investments.
- Active fund managers who get their investment decisions right, can beat average market growth, especially in times of good market performance.
- Active fund managers can also shield investors from the full extent of a market downswing by for example, switching assets to create less exposure to equities.

Some disadvantages of active fund management include the following:

- Actively managed funds have high fees attached to them. Typically, the fees on an actively managed fund are at least twice as much as what you would pay for a passively managed fund. The risk is that, over time, the higher fees may have a significant negative impact on investment growth.

- Active fund managers may make bad investment choices or follow unsound theories in managing the fund, which will lead to poor investment returns (in addition to the higher costs).
- There have been numerous studies done covering different time periods to determine how successful active fund managers are at beating the market, and the majority of these studies have concluded that, although there are some funds that do tend to consistently beat the market, on the whole there seems to be more funds that underperform than outperform their benchmark index, especially over longer periods of time.

II) Advantages and disadvantages of passive fund management

Some advantages of passive fund management include the following:

- It reduces costs due to the passive buy-and-hold strategy, and this can have a significant impact on real returns (after deduction of costs), over time.
- Passive fund management can be said to provide simplicity, in the sense that the investor knows what they are getting – a replica of all the shares in the market or index being tracked.
- Passive funds offer a low-cost method of diversification, since shares representing the entire index are bought.
- In a passive fund, the investor is not at risk of being exposed to bad management decisions.
- Since passive funds are invested in an entire market, investors automatically benefit from upswings in that market.

Some disadvantages of passive fund management include the following:

- With passively managed funds, investors cannot ever outperform the market and, when costs are included, a passive fund will effectively always underperform the market.
- When the market experiences a downswing, investors automatically experience the full extent of the downswing in their investment, since there is no active fund manager that could shield them from full exposure to the market.

III) When is active and passive management an appropriate style for investors?

Active management is appropriate for investors who want to invest in specialised equity markets that require specialised knowledge and expertise, to take advantage of inefficient pricing. For example, emerging markets, small-cap stocks and companies involved in resources and metals mining. Active management may also be appropriate for investors who want an experienced professional to make tactical investment decisions to outperform the market, and to shield them from negative market volatility.

Passive management is appropriate for investors who want a well-diversified holding of well-known popular shares (such as large cap shares, for example, as tracked by the FTSE/ JSE Top 40 index), and who are comfortable to ride out the short-term market fluctuations.

6.4 TYPES OF COLLECTIVE INVESTMENT SCHEMES

6.4.1 Exchange traded funds

An exchange traded fund (ETF) is a collective investment scheme (CIS) designed to match the performance of a particular equity index. ETFs are registered as CISs with the FSCA. The majority of EFTs are listed on the JSE.

There are two basic structures for exchange-traded funds (ETFs): physical or synthetic.

A physical equity ETF, also called a vanilla ETF, is a traded financial instrument representing ownership in an underlying portfolio of shares that tracks an index like the JSE/FTSE Top 40 Index. Investors can buy and sell ETFs on an exchange in the same way they would any other listed shares. The prices of ETFs fluctuate at once in response to changes in their underlying portfolios thereby offering the same intra-day liquidity as other shares traded on exchange. ETFs give investors exposure to a diversified basket of shares.

Synthetic ETFs attempt to obtain the return on an index by using over-the-counter derivatives such as total return swaps. As such synthetic ETFs reproduce the index synthetically rather than by replicating the index physically by owning the physical assets. Synthetic replication can be cost effective, especially if the index is illiquid. There are many variants of synthetic ETFs.

- Leverage ETFs offer multiples of for example 2 or 3 times the return of the index.
- Inverse ETFs return the inverse performance of the index i.e., a positive return when the return on the index is negative.

Physical ETFs are the dominant form of ETF, especially in the US and are mainly provided by large independent asset managers. The appeal of ETFs to investors is clear-cut: access to a low-cost diversified portfolio that can be traded intra-day. However, ETFs have become increasingly complex and opaque both in the derivatives-based structures they employ and the strategies they use to generate returns.

This has attracted the attention of financial market and banking regulatory and supervisory authorities and raised concerns about the risks, particularly structured ETFs, pose to financial stability and investor protection. This is especially true when parallels are drawn between recent developments in the ETF markets and those in the securitisation markets before the 2007/08 financial crisis. Revision of the current regulatory regime regarding ETFs may be appropriate given the growing complexity of a market.

6.4.2 Hedge funds

Hedge funds like other CISs, pool investors' money and invest those funds in financial instruments to make a positive return. Many hedge funds seek to profit in all kinds of markets by pursuing leveraging and other speculative investment practices that may increase the risk of investment loss.

The term 'hedge' is generally associated with the practice of covering an investment position (long-bought position) with an equal and opposite position (short sale position), thereby neutralising the market risk of the original investment decision. The degree to which a fund is 'hedged' in the traditional sense varies substantially across funds. A fund is said to have a net short position or bias when it takes a larger bet on short positions versus long positions. A fund is said to have a net long position or bias when it takes a larger bet on long positions versus short positions.

Hedge funds achieve leverage through conventional means, such as unsecured or partially secured debt, but in reality, much of the leverage of hedge funds is created through the types of trading strategies undertaken. For example, a hedge fund uses leverage when it sells government bonds short and uses the proceeds to establish a long position in corporate bonds.

An investor has several options for accessing hedge funds. One is to directly invest in one or several hedge funds. Alternatively, the investor can purchase an interest in a fund of hedge funds, also known as a multi-manager fund. The investment manager of a fund of hedge funds selects and invests in many hedge funds, often through an offshore corporation or similar privately placed vehicle.

In 2015, South Africa strengthened the regulation of hedge funds through declaring their businesses to be collective investment schemes and setting out the requirements for hedge funds including liquidity, collateral, fund administration, valuation, disclosure and reporting.

Two types of hedge funds are provided for; one for retail investors and the other for qualified investors. A qualified investor is a person who invests a minimum investment amount of R1 million per hedge fund, and who personally or through an authorised financial service provider has sufficient knowledge and experience to assess the benefits and risks of a hedge fund investment.

6.5 MARKET PRICE AND FEES

6.5.1 Market price

Unlike share prices which fluctuate throughout the day, collective investment portfolios have a fixed price for the day. With forward pricing, the price is established each evening, using closing prices of investments for the day, and then applied to all the transactions that took place during the same day. This means that all sales, repurchases and creation of new units can only be priced and processed at the end of the day

The per unit price of a collective investment scheme can be accessed by newspaper, other media, the fund manager website or the ASISA website.

The per unit price of a collective investment scheme is quoted as the NAV price together with the initial fee expressed as a percentage inclusive of VAT of the amount invested.

The formula for the NAV is as follows:

$$NAV = \frac{\textit{Underlying assets} - \textit{Liabilities}}{\textit{Numbers of units in issue}}$$

In order to calculate the value of the investment, one would simply multiply the number of units which the investor holds by the NAV.

6.5.2 Fees

Collective investment portfolio fees and charges were deregulated on 1 June 1998. Prior to deregulation, collective investment portfolios were not legally allowed to charge more than 1% as an annual management fee and 5% for initial charges. After deregulation, the ceiling on annual fees was removed, meaning that funds launched after deregulation do not have the same restrictions imposed on them. Fees are thus determined by market forces and the actual costs incurred can differ from fund to fund.

Any level or type of fee may be changed, but the management company has to give its unit holders three months written notice of any increase in fees, additional fees or change in calculation of fees and charges.

Following the de-regulation of fees and charges, multiple classes of units were introduced. This allows management companies to identify different types of unit holders and to differentiate between the service offered to different clients and the annual fees they charge.

Collective investment portfolio management companies are obliged to disclose all fees and charges to their investors, and these are usually disclosed on all marketing material. Each collective investment portfolio fund has different fees and charges, but these costs can be broadly classified into two categories: once-off entry costs and on-going annual costs.

I) Once-off entry costs

Initial fees are levied when purchasing units, be it an initial lump sum, additional deposit or debit order. Generally speaking the higher the investment amount the lower the initial charge.

Initial fees are charged by the management company of which a portion is used to pay broker commission and the remainder covers marketing and administration costs. These fees are deducted from the amount invested and can range between 1% and 5%.

However, since deregulation has come into effect, there are no maximum restrictions in terms of initial charges. Some management companies do not charge initial fees at all which is in line with the international "no-load" trend.

Value added tax is levied on the initial charge at a rate of 15%

II) Ongoing annual costs

This is an ongoing fee levied by the management company for administering the units and managing the investments. Prior to deregulation, these charges had a ceiling of 1%.

VAT of 15% is payable on the service fee. These fees are calculated on a daily basis and are automatically deducted from income distributions on a monthly basis.

Some management companies pay broker fees out of the annual management fee. These are trailer fees, which are paid to brokers to provide on-going investment advice to their clients.

Performance-based fees have recently been introduced to the market. Instead of charging a fixed annual fee of say 1%, annual fees are linked to the performance of the fund. A maximum performance fee will be charged if the fund exceeds a given relevant benchmark, for example the JSE All Share Index, by a certain percentage. Should a fund under perform its benchmark, the annual fees may be waived entirely.

- Benchmark return e.g. JSE All Share Index - 5% per annum
- 20% outperformance of benchmark - 3% per annum (max annual fee)
- 20% underperformance of benchmark - 0% per annum (min annual fee)

III) Switching fees

Fees are levied if an investor switches from one fund to another. Some companies charge a fixed fee for each switch, but most do not charge for switching between funds within the management company.

IV) Exit fees

Some management companies do not levy initial fees or charge a reduced initial fee but levy an exit fee. This is a fee you pay if you sell an investment within a certain period i.e. within the first year and is based on the original capital as well as growth of the fund.

6.5.3 Differences in fees for different funds

I) Equity funds versus fixed interest funds

Generally, investment charges for equity collective investment portfolio funds are higher than the fees of fixed interest funds such as money market funds and bond funds, because investing in equity markets is riskier and more time consuming from a research perspective, than investing in fixed interest markets.

Although money market funds may require a high initial lump sum (anything from R20 000 to R50 000), no initial charges are levied. In addition, no commission is payable to brokers and no MST tax is levied.

II) Actively managed funds versus passively managed funds

Actively managed funds tend to charge higher fees than passively managed funds. Passively managed funds such as index funds follow a chosen index e.g. All Share index (ALSI) with the aim of replicating the stock market's performance. The only risk the investor is exposed to is market risk. The fund manager need not select shares that may outperform the index. In essence no active decision-making is required for these funds and hence they can charge lower fees and charges. Conversely, fund managers of actively managed funds endeavour to outperform a given benchmark through superior stock selection, and a keen understanding of the market. This active management of the fund allows management companies to levy higher fees and charges.

III) Traditional collective investment portfolio versus a fund of funds

Funds of funds do have higher fees and charges than traditional collective investment portfolios. A fund of funds is a collective investment portfolio fund that invests in a range of other collective investment portfolios. These could be funds within a management company's own range (internal fund of funds) or a selection of funds managed by various management companies (external fund of funds). In the case of a traditional collective investment portfolio, one layer of fees and charges is payable i.e. an initial charge and an annual fee.

With a fund of funds, an additional layer of fees is payable i.e. in addition to the initial fee and annual charges applicable to the fund of funds, the management costs of the underlying funds must be accounted for too. To remain competitive, in-house funds of funds often do not charge the second layer of fees and charges and some management companies absorb the second layer of costs. Investors should check with the management company if and at what level underlying investment costs are payable.

6.6 FINANCIAL PRODUCTS WITH UNDERLYING INVESTMENTS IN COLLECTIVE INVESTMENT PORTFOLIOS

Many investors invest in more than one fund in order to achieve the diversity required to spread investment risk. To meet this need for diversification, packaged products have been designed, which allow investors to invest in a single product consisting of a number of collective investment portfolios or investment portfolios bundled together to suit particular risk/return profiles. Packaged products include funds of funds, wrap funds, linked products and multi-manager funds - all of which have collective investment portfolios as underlying investments.

The basic principle behind all these products is that the client/individual invests in a single product, which consists of a number of underlying funds managed by an array of fund managers. These products, often known as split investments, claim to offer greater flexibility than a single investment product, as investors are not locked into one investment from one company

The sections following consider these packaged products.

6.6.1 Fund of funds

A fund of funds is a collective investment portfolio fund that invests in a range of other collective investment portfolios. These could be funds within a collective investment portfolio management company's own range (internal fund of fund) or a selection of funds managed by various collective investment portfolio management companies (external fund of fund). A fund of funds may not invest in less than two underlying collective investment portfolios.

When an investor invests in a collective investment portfolio, the investor buys units of a fund which in turn uses the money to invest in assets which may include shares, bonds and cash. The investor owns the units or a portion of the collective investment portfolio relative to the number of units bought. However, when an investor purchases units in a fund of funds, the investor only owns the units in the fund of funds and not in the units of the underlying collective investment portfolios which make up the fund of funds. These units in the fund of funds are subject to the same legislation as the underlying funds.

I) Advantages of investing in a fund of funds

The advantages of investing in a fund of funds are as follows:

- **Investing is made easier:** Investment decisions are easier as the investor does not have to decide on the mix of collective investment portfolios to spread his risk. A dedicated fund manager, with specialised investment expertise makes this decision on behalf of the investor. It is also an ideal investment tool for the inexperienced investor.
- **Investment in multiple funds with a single investment:** The investor is allowed to invest small amounts of money across a number of funds. This is an affordable way for the man on the street to invest in the stock market. Reporting is simplified.
- **Diversification with a single investment:** Diversification across different collective investment portfolio types and management companies within a single investment, which makes investment tracking much easier. The investors will also be advised periodically of any changes to the portfolio.
- **Risk of under-performing funds is reduced:** Risk is spread if a collective investment portfolio within the fund range should under-perform. Since these funds invest in a number of collective investment portfolios should one of the funds under-perform, the negative impact can be offset to a large degree by the performance of the other funds. These investments are a good choice for an investor who is concerned about choosing the wrong fund manager or fund.
- **Lower price volatility:** Through diversification, the unit price of a portfolio of funds will not fluctuate as much as the prices of the underlying funds, which means lower price volatility.
- **Regulated:** Regulated by Collective Investment Schemes Control Act and the Stock Exchanges Control Act and the Financial Markets Act. Self-regulation is ensured through ASISA. Transparency Fees and charges are available from the management company and fund performance figures are regularly published in the media.

- **Tailor-made to meet investor's risk profile:** A professional fund manager manages the fund, which is tailor-made to meet the risk profile of the investor.
- **Linked to other investment types:** These investment types can be linked to preservation funds, living annuities and retirement annuities. A retirement product can be tailored to meet the specific needs of the investor by way of a wrap fund.
- **Affordable:** Low minimum investment amounts are permitted.

II) Disadvantages of investing in a fund of funds

- **Higher costs:** Initial charges may be higher than a direct collective investment portfolio investment as an initial fee for the investment is payable as well as for each underlying collective investment portfolio. Investors may have to pay for the management of the investment and for the management of the underlying collective investment portfolios.
- **Averaging of performance:** Best performance can never match that of the best performing underlying fund as the performance of all the underlying funds are offset against each other.
- **Eggs in one basket:** Although the investor has a wide spread of investments, they are administered by a single company, which can increase his dependency on a single company or financial advisor.

6.6.2 Linked products

Linked investment services providers (LISPS) offers a range of investments linked to collective investment portfolios and other underlying investments. LISPs are not product suppliers as such but provide administrative systems to gain access to various suppliers of retail investment products including fund of funds, multi-manager funds and wrap funds.

LISPs can link collective investment portfolio investments with other investment products such as retirement annuities and provident funds.

LISPs develop investment packages comprising collective investment portfolios and other instruments in line with the investment needs of their client. They buy the units in bulk from collective investment portfolio companies, repackage them to provide investors with a choice of collective investment portfolios, and the opportunity to combine collective investment portfolios with other compulsory investment types such as retirement annuities or provident funds, or specialist plans. Buying in bulk allows LISPs to negotiate favourable initial charges and switching fees with the relevant Management Companies.

Products offered by LISPs can be divided into three broad categories:

- **Voluntary contributions:** These are savings from after-tax income and are invested into growth/lifestyle funds or wrap funds.
- **Pre-retirement savings:** These include retirement annuities, pension and provident funds and preservation funds.
- **Retirement products:** These include living annuities and guaranteed income plans. New Generation Life Products are similar to LISP products but offer a choice of investments through an insurance policy and are offered by life companies. They offer additional access to the insurer's in-house investment portfolios.

I) Advantages of investing in linked products

The advantages of investing in a fund of funds are as follows:

- **Investing is made easier:** Investment decisions are easier as the investor does not have to decide on the mix of collective investment portfolios to spread his risk. A dedicated fund manager, with specialised investment expertise makes this decision on behalf of the investor. It is also an ideal investment tool for the inexperienced investor.
- **Investment in multiple funds with a single investment:** The investor is allowed to invest small amounts of money across a number of funds. This is an affordable way for the man on the street to invest in the stock market. Reporting is simplified.
- **Diversification with a single investment:** Diversification across different collective investment portfolio types and management companies within a single investment, which makes investment tracking much easier. The investors will also be advised periodically of any changes to the portfolio.
- **Risk of under-performing funds is reduced:** Risk is spread if a collective investment portfolio within the fund range should under-perform. Since these funds invest in a number of collective investment portfolios should one of the funds under-perform, the negative impact can be offset to a large degree by the performance of the other funds. These investments are a good choice for an investor who is concerned about choosing the wrong fund manager or fund.
- **Lower price volatility:** Through diversification, the unit price of a portfolio of funds will not fluctuate as much as the prices of the underlying funds, which means lower price volatility.

- **Tailor-made to meet investor's risk profile:** A professional fund manager manages the fund, which is tailor-made to meet the risk profile of the investor.
- **Linked to other investment types:** These investment types can be linked to preservation funds, living annuities and retirement annuities. A retirement product can be tailored to meet the specific needs of the investor by way of a wrap fund.
- **Reduced switching fees:** Linked product investors may pay lower switching charges than ordinary collective investment portfolio investors.
- **Reduced tax liability:** The possible inclusion of traditional retirement annuities and traditional life products enables the investor to make additional tax efficient investments.
- **Flexibility:** The investor can play an active role in the selection of his investments and can adjust his portfolio via a single transaction

II) Disadvantages of investing in linked products

- **Higher costs:** Initial charges may be higher than a direct collective investment portfolio investment as an initial fee for the investment is payable as well as for each underlying collective investment portfolio. Investors may have to pay for the management of the investment and for the management of the underlying collective investment portfolios.
- **Averaging of performance:** Best performance can never match that of the best performing underlying fund as the performance of all the underlying funds are offset against each other.
- **Eggs in one basket:** Although the investor has a wide spread of investments, they are administered by a single company, which can increase his dependency on a single company or financial advisor.
- **Complicated fee structure:** Complicated and variable pricing affect initial costs and annual service fees and there are three different kinds of broker's fee structures (tied agents, independent brokers and corporate brokers).
- **High broker fees:** Brokers fees are not regulated by the industry and as a result, costs can be high.
- **High levels of churning:** There is high degree of switching or churning because it is so easy to do.

- **Increased costs in the long run:** Linked products may have slightly higher costs over time as two annual fees are payable for linked products; one to the CIS management company and the other to the linked product company.

6.6.3 Wrap funds

A wrap fund is a portfolio consisting of a number of underlying investment tools wrapped into a single product. Wrap funds are not classified as funds of funds as the wrap fund itself is not a collective investment portfolio but is in fact a portfolio of separate collective investment portfolios and money market accounts/instruments. The underlying combination of investment tools or instruments is selected to target the risk/return requirements of individual investors. The combination of the underlying instruments may be conservative, balanced or aggressive.

With a wrap fund the investor has direct ownership of the underlying investments. Wrap funds are not regulated by the Collective Investment Schemes Control Act and do not have separate legal status. They are controlled by the same legislation pertaining to Linked Investment Services Providers (LISPs), namely the Stock Exchanges Control Act and the Financial Markets Control Act. Wrap funds can be managed by almost anyone provided they are registered with the Financial Sector Conduct Authority as a portfolio manager.

Wrap Funds are offered by some Linked Product Companies and Asset Management Groups. Any registered portfolio manager can establish his own wrap fund and act as investment advisors for that fund. Investors are advised as to which of the wrap funds is suitable based on their risk profiles and investment needs.

Wrap funds can be administered by two types of LISPs:

- **Discretionary LISPs:** The administration and investment function of the wrap are housed within the LISP.
- **Non-discretionary LISPs:** The administration is housed within the LISP and the investment function is outsourced.

I) Advantages of investing in wrap funds

The advantages of investing in a fund of funds are as follows:

- **Investing is made easier:** Investment decisions are easier as the investor does not have to decide on the mix of collective investment portfolios to spread his risk. A dedicated fund manager, with specialised investment expertise makes this decision on behalf of the investor. It is also an ideal investment tool for the inexperienced investor.
- **Investment in multiple funds with a single investment:** The investor is allowed to invest small amounts of money across a number of funds. This is an affordable way for the man on the street to invest in the stock market. Reporting is simplified.
- **Diversification with a single investment:** Diversification across different collective investment portfolio types and management companies within a single investment, which makes investment tracking much easier. The investors will also be advised periodically of any changes to the portfolio.
- **Risk of under-performing funds is reduced:** Risk is spread if a collective investment portfolio within the fund range should under-perform. Since these funds invest in a number of collective investment portfolios should one of the funds under-perform, the negative impact can be offset to a large degree by the performance of the other funds. These investments are a good choice for an investor who is concerned about choosing the wrong fund manager or fund.
- **Lower price volatility:** Through diversification, the unit price of a portfolio of funds will not fluctuate as much as the prices of the underlying funds, which means lower price volatility.
- **Tailor-made to meet investor's risk profile:** A professional fund manager manages the fund, which is tailor-made to meet the risk profile of the investor.
- **Linked to other investment types:** These investment types can be linked to preservation funds, living annuities and retirement annuities. A retirement product can be tailored to meet the specific needs of the investor by way of a wrap fund.
- **Greater impartiality:** Portfolio managers of wrap funds are usually not tied to any one asset manager.

II) Disadvantages of investing in wrap funds

- **Higher costs:** Initial charges may be higher than a direct collective investment portfolio investment as an initial fee for the investment is payable as well as for each underlying collective investment portfolio. Investors may have to pay for the management of the investment and for the management of the underlying collective investment portfolios.
- **Averaging of performance:** Best performance can never match that of the best performing underlying fund as the performance of all the underlying funds are offset against each other.
- **Eggs in one basket:** Although the investor has a wide spread of investments, they are administered by a single company, which can increase his dependency on a single company or financial advisor.
- **Complicated fee structure:** Complicated and variable pricing affect initial costs and annual service fees and there are three different kinds of broker's fee structures (tied agents, independent brokers and corporate brokers).
- **High broker fees:** Brokers fees are not regulated by the industry and as a result, costs can be high.
- **High levels of churning:** There is high degree of switching or churning because it is so easy to do.
- **Inadequate performance statistics:** Since wrap funds are relatively new, performance statistics are scarce and comparisons of wrap funds cannot be made as some companies do not disclose performance information.
- **Not suitable for small investors:** Some wrap funds tend to exclude small investors e.g. investors with less than R50 000 to invest. High net worth investors with lump sum investments are targeted (debit orders are often not allowed).
- **No regulation:** The wrap industry is not regulated. Investors need to be aware of this as they have limited recourse.
- **Small investors may be prejudiced:** Some wrap funds may have a concentration of investments in a small number of collective investment portfolios that could result in large swings between collective investment portfolios prejudicing smaller investors in the funds

6.6.4 Multi-manager funds

Multi-manager is a method of managing a fund's assets. The multi-manager approach bundles asset managers together in different combinations to provide investors with choices designed to meet various risk profiles.

A multi-management collective investment portfolio invests in an actively managed blend of tailor-made specialist portfolios of equities and fixed interest instruments, by combining the investment styles of different fund managers into one investment product.

One fund is managed by numerous asset managers, each of them a specialist in a certain sector of the market, adopting different investment styles, favouring certain markets, trends or stocks. The choice of these external fund managers is a quantitative science, which involves the selection and blending of specialist portfolio managers who have been identified as being the "best of the best" in their particular investment style or approach.

The underlying portfolios are managed according to mandates set by the fund. To achieve the collective investment portfolio's risk and return objectives, fund managers are mixed using computer optimisation models to ascertain the extent of the exposure of each fund to each manager. As the market changes and as managers change their risk profiles by buying and selling stocks, the combination of managers in the fund is rebalanced using performance analysis to assess if the fund is on track.

The investor's tolerance to risk is assessed by striking a balance between the investor's expectation of return and his attitude towards risk. The multi-manager is then able to assess how aggressively or conservatively the investor's assets need to be managed, and thus which multi-manager best addresses the investor's requirements.

Some of the better-known styles are as follows:

- **Growth style managers:** These managers primarily interested in a company's earnings. Their bias is towards companies expected to exhibit profitability and shareholder earnings growth greater than their industry peers.
- **Value oriented managers:** These managers look for companies that they believe are worth more than the current value of their shares. They may purchase shares of companies that are currently out of favour with the market, believing that the shares are good value for the price based on future expectations of performance.
- **Market orientated managers:** These managers seek to develop well-diversified portfolios with average growth and valuation characteristics similar to the broad market. Many seek to add value by emphasising shares in economic sectors they believe have the most potential.

There are many more styles - for example, the strategic empowerment style, where managers focus on "black chips" and specific market sector styles.

I) Advantages of investing in multi-manager funds

The advantages of investing in a fund of funds are as follows:

- **Investing is made easier:** Investment decisions are easier as the investor does not have to decide on the mix of collective investment portfolios to spread his risk. A dedicated fund manager, with specialised investment expertise makes this decision on behalf of the investor. It is also an ideal investment tool for the inexperienced investor.
- **Risk of under-performing funds is reduced:** Risk is spread if a collective investment portfolio within the fund range should under-perform. Since these funds invest in a number of collective investment portfolios should one of the funds under-perform, the negative impact can be offset to a large degree by the performance of the other funds. These investments are a good choice for an investor who is concerned about choosing the wrong fund manager or fund.
- **Lower price volatility:** Through diversification, the unit price of a portfolio of funds will not fluctuate as much as the prices of the underlying funds, which means lower price volatility.
- **Regulated:** Regulated by Collective Investment Schemes Control Act and the Stock Exchanges Control Act and the Financial Markets Act. Self-regulation is ensured through ASISA. Transparency Fees and charges are available from the management company and fund performance figures are regularly published in the media.
- **Tailor-made to meet investor's risk profile:** A professional fund manager manages the fund, which is tailor-made to meet the risk profile of the investor.
- **Linked to other investment types:** These investment types can be linked to preservation funds, living annuities and retirement annuities. A retirement product can be tailored to meet the specific needs of the investor by way of a wrap fund.
- **Best managers are selected:** The best specialist manager in a specific investment area is selected for the various areas of the fund.
- **Compliance with investment mandate:** By closely managing the asset manager, the management company can ensure that the asset manager complies with the fund mandate. The fund mandate ensures that the asset manager's style is similar to the objective and risk profile of the fund.

- **Improved fund and manager performance:** The blend of the overall investment portfolio can be targeted in such a way as to enhance the value of the managers' abilities and it also allows management companies to remove under performing fund managers. Reduces overlap of different portfolios.
- **Consistency of performance:** Each fund manager manages a portfolio belonging exclusively to the multi-manager collective investment portfolio thus reducing the impact of the movements of other investors and ensuring consistent performance.
- **Exposure to a variety of fund managers and styles:** Multi-manager funds enable investors to select a single collective investment portfolio fund and to enjoy the exposure to a variety of fund managers and styles without investing in a variety of Collective investment portfolios

II) Disadvantages of investing in multi-manager funds

- **Higher costs:** Initial charges may be higher than a direct collective investment portfolio investment as an initial fee for the investment is payable as well as for each underlying collective investment portfolio. Investors may have to pay for the management of the investment and for the management of the underlying collective investment portfolios.
- **Averaging of performance:** Best performance can never match that of the best performing underlying fund as the performance of all the underlying funds are offset against each other.
- **Eggs in one basket:** Although the investor has a wide spread of investments, they are administered by a single company, which can increase his dependency on a single company or financial advisor.

6.6.5 Summary of packaged products

The table below summaries the features of a traditional collective investment portfolio and packaged products.

	Traditional collective investment scheme	Fund of fund	Linked product	Wrap fund	Multi-manager fund
Description & underlying investment	A collective investment portfolio that invests in local or offshore shares, bonds and cash	A collective investment portfolio that invests in a range of collective investment portfolios	Product provider who packages a range of chosen collective investment portfolios and other investment vehicles	A portfolio comprising units trusts and money market instruments - no separate legal status	A collective investment portfolio that blends investment styles of different Fund Managers
Investment decision taken by	Fund manager	Fund manager	Individual or broker	Fund manager	Fund manager
Selection criteria	Equities, bonds, cash, depending on the investment cycle	Collective investment portfolios that should perform well in the future	Depends on client or advisor	Collective investment portfolios that should perform well in the future	Top fund managers in desired market sectors
Investing offshore via asset swaps	Yes	Yes	Underlying collective investment portfolios can	Underlying collective investment portfolios can	Yes
Branding	CIS Management Company or white labelling	CIS Management Company or white labelling	All investment portfolios carry LISP brand name	Can have any brand. 'Own' brand very popular	CIS Management Company or white labelling
Performance data in the media	Yes	Yes	No	No	Yes
Daily pricing in the media	Yes	Yes	No	No	Yes
Governing legislation	Collective Investment Schemes Control Act	Collective Investment Schemes Control Act	FAIS Act	FAIS Act	Collective Investment Schemes Control Act FAIS Act

	Traditional collective investment scheme	Fund of fund	Linked product	Wrap fund	Multi-manager fund
	Stock Exchange Control Act Financial Markets Act	Stock Exchange Control Act Financial Markets Act			
Costs (incl. VAT)	Up to 5.7% upfront 0.57% - 3.4% p.a.	Up to 7% upfront 2% - 4.5% p.a. plus cost of underlying funds	Up to 9% upfront 1.71% - 4.3% p.a. plus cost of underlying funds	Up to 8% upfront 1,8% -4.3 % p.a. plus cost of underlying fund	Up to 6% upfront 1.14% - 2.3% p.a. plus cost of underlying funds

6.7 DISCLOSURE CONSIDERATIONS

6.7.1 Fund fact sheets

Fund fact sheets provide investors with useful information, such as the following:

- Classes of assets in which the fund is invested.
- The percentages of assets under management invested into a particular asset class.
- The historical performance of the fund since inception – relative to the benchmark from time to time.
- The identity of the fund manager.
- The classification of the fund.
- The investment objectives of the fund
- The distributions of the fund
- The value of assets under management
- The risk profile of the fund
- The percentage fees and TERs charged by the fund
- The commentary of the fund; this provides the investor with insight into the manager's views – and thus with additional information when considering a new investment.

Fund fact sheets are therefore invaluable to prospective investors.

6.7.2 Minimum disclosure document

In terms of the Collective Investment Schemes Control Act (CISCA) and Board Notice 92 of 2014, a fund manager is required to produce a minimum disclosure document (MDD) for every collective investment scheme under management.

The purpose of the MDD is to provide prospective investors with information that would be pertinent and easy to understand – prior to deciding whether to invest in the fund.

The scope of the MDD extends to fund fact sheets, i.e. the same minimum information requirements apply. The legislation therefore still allows for the publication of fund fact sheets **if** a manager chooses to do so. However, the manager is legally obliged to produce and update an MDD at least quarterly from the inception date of the portfolio.

The format of the MDD is also regulated in that it may not be longer than four A4 pages; this does not apply to a fund fact sheet.

Due to the similarity between the two documents, many managers have opted to publish only MDDs instead of fund fact sheets on a monthly basis.

The MDD (which may be in the form of a fund fact sheet) must be provided to all prospective investors. It should also be provided to investors when they add to an existing investment or switch into the fund.

Both the MDD and fund fact sheet contain the same minimum required information. Usually managers who choose to publish both will produce the MDD containing only the required information quarterly and publish a monthly fund fact sheet containing additional current information, such as economic commentary.

6.8 TAX CONSIDERATIONS

Income from a collective investment scheme usually comprises interest and/or dividends.

- Interest is subject to income tax; however, some exemptions may apply.
- Dividend withholding tax (DWT) is payable by the issuer of the dividends on behalf of the investor.
- Capital gains tax (CGT) is payable in the event of the disposal of the participatory interests (units) or in the event of the death of the owner of the participatory interest.

6.9 THE ROLE OF COLLECTIVE INVESTMENT SCHEMES IN AN INVESTMENT PORTFOLIO

A well-diversified portfolio, comprising all the asset classes that were discussed, requires skills, expertise and time to construct and manage. Also, the amount of capital needed to achieve adequate levels of diversification is usually very high, placing direct investments in financial instruments outside the reach of the average person.

For this reason, investment vehicles that pool investors' funds to invest in a well-managed, diversified portfolio of securities fulfil a vital role in most investment portfolios. Through unit trusts, ordinary investors can access a range of diversified portfolios that satisfy their risk and return objectives.

Specialised unit trusts can focus on specific asset classes; for example, equity, bonds, money market, property, etc., while other unit trusts follow a multi-asset approach to construct portfolios with specific risk-return characteristics. Investors can therefore combine different unit trusts to create a portfolio that is tailor-made to their needs. As an example, a long-term investor seeking aggressive capital growth can choose from a range of equity funds, while an investor looking for a short-term solution can invest in a money-market fund.

ETFs have been gaining popularity in recent years and offer even small investors the opportunity to gain exposure to a basket of instruments (most notably, equity). Part of the appeal of ETFs is their low cost structure and transparency, as they tend to follow passive (or index tracking) investment strategies. Traditionally, ETFs focused on tracking the exposure of broad market indices. An example of this would be the Satrix40 ETF, which tracks the FTSE/JSE Top 40 index. Newer ETFs offer investors exposure to specific asset classes, such as bonds, commodities, cash and even multi-asset solutions.

Hedge funds typically follow absolute return strategies, which attempt to earn positive returns when markets are rising or falling. As a result, hedge funds can have return profiles that are uncorrelated with markets or specific asset classes. For this reason, hedge funds can be useful for an investor looking for further diversification opportunities.

From a tax perspective, CISs are potentially a more tax-efficient vehicle than direct investments. With direct investments, capital gains are triggered whenever an asset is sold. At present, capital gains within a CIS are not subject to CGT. Rather, capital gains are only triggered when participatory interests are redeemed. Interest and dividends received by the fund are, however, still taxable in the hands of the ultimate investor.

In conclusion, CISs offer retail investors the opportunity to participate in financial markets through professionally managed, well-diversified funds which would have otherwise been outside of their reach.

TOPIC 7 RETAIL PENSION BENEFITS

LEARNING OUTCOMES

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

- Explain the general characteristics, terms and features of financial products in the class of business and any specialist characteristics, terms and features in respect of preservation funds.

7.1 INTRODUCTION

Individuals who are saving for their retirement, or who are drawing an income post-retirement, can do so with discretionary investments or through a set of products that are designed for this purpose.

During the accumulation phase, individuals can use different types of retirement funds to save towards their retirement.

The different kinds of retirement funds include the following:

- Pension funds
- Provident funds
- Preservation funds
- Retirement annuity funds

Pension and provident funds are set up by employers as a vehicle for their employees to make provision for retirement. Many retirement funds also offer risk benefits, such as death and disability benefits. The fund is managed by trustees on behalf of the members. These products fall within the Class of Business 7: Pension fund benefits and is not considered in this course.

Retirement annuity funds are made available by long term insurers and therefore, falls within Class of Business 3: Long-term insurance and also falls outside of the scope of Class of Business: Investment.

The following topic considers Preservation funds in more detail.

7.2 PRESERVATION FUNDS

When a member leaves a company and withdraws from a pension or provident fund, he may choose to preserve the retirement benefits in a preservation fund. This can be done by transferring the benefits to a preservation fund, as follows:

- If the individual was a member of a pension fund, the benefit will be transferred to a pension preservation fund.
- If he was a member of a provident fund, he will transfer the benefit to a provident preservation fund.

The rules of the fund from which he is transferring must allow for the transfer of the benefit to a preservation fund. (In terms of the provisions of the Taxation Laws Amendment Act, 2008 (Act No. 3 of 2008), a participating employer is not required.)

There are certain important tax concessions granted to a member who preserves his retirement fund benefit in a preservation fund. No further contributions can be made to the preservation fund and the benefit/investment continues to grow in the portfolio of the member's choice. The investment will thus only grow in line with its net investment return.

An investor can invest the proceeds from different pension or provident funds in either one or multiple preservation fund. However, the proceeds from one pension or provident fund cannot be split across different preservation funds.

Subject to specified criteria, the unique feature of a preservation fund is that the member may currently make one cash withdrawal of all or part of the investment amount, prior to retirement. This withdrawal will be subject to taxation (as if the investor withdrew the cash from the retirement fund) with the same rules applicable to withdrawal benefits applying.

7.3 FEES ASSOCIATED WITH PRESERVATION FUNDS

Preservation funds typically utilise collective investment schemes for their underlying investments. In this case, the normal fees associated with unit trusts (investment management fees, administration fees and trading costs) are applicable. There may also be a fee payable to the provider of the preservation fund. In addition, a financial adviser may charge an initial and ongoing advice fee.

7.4 TRANSFERS

An investor can transfer a preservation fund tax-free to another preservation fund, or to a retirement annuity, or to your employer's retirement fund. Currently, you cannot transfer a pension preservation fund to a provident or provident preservation fund.

7.5 ACCESSING THE PRESERVATION FUND AND TAXATION

An investor can make one partial or full withdrawal from a preservation fund prior to the age of 55. After that, the balance can only be accessed at retirement from age 55. An investor is only allowed one early withdrawal in respect of each transfer to a preservation fund.

On retirement, for a pension preservation fund, once the balance exceeds R247 500, the investor can take a maximum of a third of the investment as cash subject to tax. With the balance the investor must purchase either a compulsory annuity or a living annuity. For a provident preservation fund, the investor can take the full investment as cash subject to tax or receive the investment partly in cash and to convert the balance to an approved compulsory annuity.

The withdrawals are taxed as per the withdrawal lump sum tax table below.

At retirement	Tax Rate	Early withdrawal	Tax rate
R0 – R500 000	0%	R0 – R25 500	0%
R500 001 – R700 000	18%	R525 001 – R660 000	18%
R700 001 – R1 050 000	27%	R660 001 – R990 000	27%
+R1 050 001	36%	+R990 001	36%

7.6 TREATMENT OF PRESERVATION FUND ON DEATH OF INVESTOR

Upon the death of the investor, the benefit will be allocated by the Fund Trustees according to the rules set out in the Pension Funds Act. The Trustees must ensure that all financial dependents are considered. The financial dependents can be listed in the beneficiary nomination form.

If no financial dependents are left behind, the Trustees will allocate the benefit according to the beneficiary nomination form.

If the investor does not have any financial dependents and failed to complete the beneficiary nomination form, the money will fall into the estate of the investor and will be distributed according to the will. Any lump sum payment on death will be taxed as a retirement benefit as though it had been received by the investor prior passing.

GLOSSARY OF TERMS

Alpha: alpha represents the abnormal return of a security or portfolio over and above what is required by an equilibrium model, such as the capital asset pricing model. The required return is the fair return expected on similar assets, given their level of risk. Alpha is the amount by which an investment is mispriced.

American-style options: an option which may be exercised at any point prior to the expiry date.

Angel investors: an angel investor provides capital for business start-ups in exchange for convertible debt or equity ownership.

Arbitrage: a situation where profit is generated without taking any risk and is made possible where the same asset reflects different prices across markets.

Arithmetic mean: the arithmetic mean is a measure of central tendency calculated by adding the observations and dividing by the number of observations. The sum of the deviations of each observation from the mean is always zero.

Ask: the 'ask' or 'offer' price reflects the price at which a dealer is willing to sell a financial asset (currency, share, etc.).

Asymmetric information: in economics and banking theory, asymmetric information deals with the study of decisions in transactions where one party has more or better information.

At-the-money: a state where the strike price of an option is equal to the current market price of the underlying asset.

Backwardation: backwardation results from a net short position in futures markets which results in a state of futures prices being below the expected future spot price of the underlying asset.

Balance of payments (BoP): the balance of payments represents a record of all transactions between a country and the rest of the world for a specific time period.

Bankers' Acceptances: bill of exchange endorsed by a bank.

Base currency: the base currency is the first currency quoted in a currency pair. The first currency quoted is often the domestic currency.

Basis: the difference between the futures price and the spot price of a particular asset.

Basis points: a unit to measure the change in value of a financial asset equal to 1/100 of 1%.

Beta: beta is a measure of market or systematic risk (volatility) in terms of a security or portfolio in comparison to the market as a whole.

Bid: the bid price is the price that a dealer is willing to pay for a financial asset (share, currency, etc.).

Binomial model: the binomial model is an option pricing model which allows for establishing option prices at various dates based on a binomial probability distribution in calculating the expected value.

Black-Scholes model: the Black-Scholes model is an option pricing model which uses the expected stock price, time to expiry, risk-free interest rate and expected volatility of the stock to calculate a value for European options.

Bond: financial asset traded in the capital market.

Book value: the value at which an asset is carried on the Statement of Financial Position. This is calculated as the cost of the asset less accumulated depreciation.

Broker: a third party facilitator between the buyer and the seller of an asset.

Business cycle: also known as the economic cycle; refers to economy-wide fluctuations in production or economic activity over several months or years.

Buy/Sell Back (BSB): see "reverse repo".

Call market: in a call market, shares may only be traded at a specific time. All bid and ask prices are gathered at one point in order to arrive at a single price where the quantity demanded is more or less equal to the quantity supplied.

Cap: a cap is an upper limit on a floating interest rate.

Capital asset pricing model (CAPM): CAPM describes the relationship between systematic risk and expected return to price risky assets (for example, shares) to ascertain a required level of return considering the securities market risk as measured by beta.

Capital market: component of the financial markets for long-term borrowing and lending with original maturities of one year or longer.

Capital risk: insufficient capital of a bank to cover operations.

Carry trade: carry trade, in terms of the forex market, refers to a strategy where investors borrow in a low interest-rate environment and invest in a high interest-rate environment where inflation does not accurately adjust the exchange rate.

Central bank: key monetary authority that implements monetary policy.

Central securities depository (CSD): a CSD is an entity which holds securities (either in certificate or dematerialised form) to enable the book entry transfer of securities between parties.

Clearing house: the clearing house is the nominated entity that guarantees traders will honour their obligation. It acts as the buyer to every seller and the seller to every buyer.

Closing price: the closing price is the final price at which a security is traded on a particular day.

Collar: an interest-rate strategy which combines an interest-rate cap and floor. Collars are also used in options trading, where an option is sold to fund the purchase of another (zero-cost collar).

Commodity: a commodity represents a basic good with the same defined quality, irrespective of the producer (for example, gold, oil, metals, etc.).

Common shares: a residual or subordinate claim to a company's assets, providing the right to vote on corporate matters at the annual general meeting. Owners of the common shares in a company share in its successes and failures.

Comparative advantage: the optimal use of the factors of production to produce products and services at a relatively lower price when compared to trading partners.

Contango: contango results from a net long position in futures markets which results in a state of futures prices being above the expected future spot price of the underlying asset.

Continuous compounding: continuous compounding refers to the process of earning interest on a continuous basis, making the compound period infinitely small. From the moment of inception, the investment therefore begins to earn interest on interest.

Continuous market: in a continuous market, trades occur at any time the market is open, irrespective of whether the shares are priced via an auction or dealers.

Controlled client: controlled clients have accounts directly with brokers who maintain the client's securities and cash together with the participant indirectly.

Correlation: a statistical measure of the extent to which two securities move in a linear relation to each other. The correlation measure reveals the strength of this relationship.

Cost-of-carry: the costs associated with carrying or holding a physical commodity or asset, such as storage, security, insurance, financing costs and so on.

Cost-push inflation: rising prices which are driven by an increase in input costs. This is measured by the Producer Price Index (PPI).

Covariance: a statistical measure of the extent to which two securities move in a linear relation to each other (co-vary). The covariance statistic does not reveal the strength of the relationship, but merely whether the asset's movements occur in the same direction or not.

Cover ratio: the number of units of the underlying asset covered by a derivative contract.

Credit risk: non-payment by borrowers, also known as counterparty risk.

Cross-currency swap: a contract between two parties to exchange interest and principal payments on loans denominated in two different currencies. This is also referred to as a currency swap.

Currency pair: all forex transactions involve two legs, buying one currency and simultaneously selling another. The two currencies involved in the exchange are referred to as the currency pair.

Current account: an account of the difference between a country's imports and exports, investment income and unilateral transfers (gifts to and from other nations) for a period in time. The current account excludes financial transactions.

Day trader: a trader who will hold a position for a very short period of time (minutes or hours) and will make numerous trades each day.

Deadweight loss: an inefficient economic state where supply and demand are not in equilibrium. This leads to an oversupply or shortage of goods and services.

Dealing spread: the dealing spread represents the difference between the bid and ask price and is equal to the trader's profit margin.

Delta: delta represents the change in an option's value due to a change in the price of the underlying asset.

Delta neutral: delta neutral is a position whereby an increase or decrease in the price of the underlying asset will not affect the value of the portfolio.

Demand-pull inflation: this refers to rising prices which are driven by an increase in aggregate consumer demand. This is measured by the Consumer Price Index (CPI).

Dematerialisation: the process by which physical share certificates are converted to electronic share records. The process aims to improve efficiency in terms of the transfer of the security.

Direct quote: a direct quote fixes the foreign currency at one unit and quotes the number of units of domestic currency needed in order to purchase one unit of foreign currency.

Dividend pay-out ratio: the pay-out ratio of the company's net income to shareholders in the form of dividends.

Earnings per share (EPS): a measure of performance which reflects the company's profitability on an annual per-share basis.

Earnings yield: the earnings yield is the inverse of the price-to-earnings ratio and demonstrates the company's earnings expressed as a percentage of the share price.

Economies of scale: the increase in efficiency of production as the volume of goods produced increases. This is demonstrated by a lower average cost per unit produced as a result of more units being spread over a fixed cost base.

Efficient frontier: the set of portfolios that will give the highest expected return for a given level of risk or the lowest risk for a given level of return.

Efficient market hypothesis: the theory which states that it is impossible to achieve abnormal or above-market returns because current security prices already reflect all available and relevant information.

Equity: also known as shares, traded on a stock exchange.

Eurocurrency market: currency that is held in banks outside of the country where it is legal tender.

European-style options: an option which may only be exercised at the expiry date as per the option contract.

Exchange rate: the conversion rate between two currencies.

Exercise price: the exercise price represents the contract price in the option contract at which the long and short position have a right to exercise the option and purchase or sell the security.

Expected return: the average of a probability distribution of possible returns, calculated by multiplying the probability by expected outcome.

Factors of production: the input resources of a country in respect of land, labour, capital and entrepreneurship which determine the final output price of a good or service.

Final consumption expenditure: the expenditure incurred by households on durable, semi-durable and non-durable goods.

Financial instrument: a financial instrument is either cash, evidence of an ownership interest in an entity or a contractual right to receive, or deliver, cash or another financial instrument.

Financial markets: mechanisms and conventions for transfer of funds.

Financial operations: buying, selling, borrowing, lending and trading activities.

Financial system: facilitates financial flows through the direct and indirect intermediation in different markets.

Fiscal multiplier: the fiscal multiplier measures the change in a country's wealth as a result of government spending. For example, as tax rates decrease, liquidity is injected into the economy which results in increased consumption. The ratio of spending to consumption is referred to as the fiscal multiplier.

Fiscal policy: the macroeconomic policy of government in relation to the spending of tax revenue.

Fixed capital expenditure: the value of the acquisition of fixed assets by the business sector, government and households, less disposals of such fixed assets.

Fixed exchange rate: see "pegged exchange rate".

Floating exchange rate: an exchange rate regime in which currency value is determined by market forces of supply and demand.

Floor: a lower bound on a floating interest rate.

Foreign direct investment (FDI): FDI refers to capital inflows into South African businesses as new plants, factories, machinery and equipment are purchased by foreigners for production purposes.

Foreign-exchange market: market for buying and selling foreign exchange.

Foreign portfolio inflows (FPI): foreign portfolio investment concerns the investment of capital into a country by purchasing financial securities, such as shares, bonds and money-market instruments.

Forward exchange contract (FEC): an over-the-counter contract between two parties which fixes the future exchange rate at which these parties will transact, based on a notional amount.

Forward exchange rate: exchange rate applicable for future currency settlement.

Forward points: the number of basis points added or subtracted from the current spot rate to determine the forward rate.

Forward rate: the forward rate represents the spot rate adjusted for cost-of-carry (for commodities) and the inflation and interest-rate differential (for currencies).

Forward rate agreement (FRA): an over-the-counter contract to define the rate of interest or exchange to be paid or received at a point in the future.

Fractional reserve system: a banking system where a fraction of deposits are withheld to provide for withdrawals.

Free cash flow to equity (FCFE): a measure to determine how much cash is available to shareholders after accounting for all expenses, reinvestment into the company and debt repayments.

Free cash flow to firm (FCFF): the sum of all cash flows due to all parties who hold a claim on the company (shareholders, bondholders, preference shareholders).

Free-float methodology: a method to calculate market capitalisation which excludes restricted shares held by the company's officials as well as various insiders.

Fundamental analysis: the process of valuing a company's securities on the basis of its expected cash flows from examining macroeconomic, microeconomic, company and security-specific data to determine whether a particular security is trading above or below its intrinsic value.

Future: a derivative contract between two parties which represents the obligation to buy and sell an underlying asset (of specific quality and quantity) at a specified point in the future.

Future: a futures contract is a standardised contract to buy or sell a specified commodity of standardised quality at a certain date in the future.

Gross domestic product (GDP): the total monetary value of finished goods and services produced within a nation's borders in a defined time period.

Hedge: an investment decision or strategy designed to reduce risk or exposure by assuming an offsetting position.

Hedge ratio: the number of derivative contracts to hold for a given underlying cash market position (similar to covered ratio).

Hedging: actions to limit risks.

Indenture: a document relating to the terms and conditions of a financial security. With reference to bonds, the indenture will contain information relating to whether the bond is convertible and may be recalled or repaid before maturity (for example).

Indirect quote: the domestic currency is fixed at one unit (the base currency = 1 unit) and the foreign currency is variable.

Inflation: continuous rise in general level of prices.

Initial margin: the first deposit posted, based on the investor's initial market exposure before any trading takes place.

Interbank market: borrowing and lending by banks between themselves

Interest rate: cost or price of money.

Intermediation: the 'matching' of lenders with savings to borrowers who need money by an agent or third party, such as a bank.

In-the-money: a state where the strike price exceeds the underlying asset price for put options and vice versa for call options.

Inverted market: the market or term structure of futures markets where the futures price is below the spot price.

JIBAR: the Johannesburg Interbank Lending Rate represents the interest rate at which South African banks lend to each other.

LIBOR: the London Interbank Offered Rate represents the rate at which US, Canadian, Swiss and UK banks (among others) lend to each other and is determined daily by the British Bankers' Association.

Liquidity risk: inability of a bank to meet short-term financial commitments.

Macroeconomics: macroeconomics examines the broader or aggregate economy and measures changes in unemployment, interest rates, GDP and inflation.

Maintenance margin: the balance which is required in the investor's account at all times after trading commences. If the balance falls below this level, a deposit to restore to initial margin is required.

Market economy: a market organised solely by factors of supply and demand, where government interference (for example, tariffs, quotas and subsidies) is at a minimum or non-existent.

Microeconomics: microeconomics examines the behaviour of consumers and businesses in an attempt to understand decision-making. The interaction between these participants relates to key supply-and-demand characteristics in determining price and output from market participants.

Monetary policy: actions taken by central banks to influence liquidity conditions and the cost of money.

Money: payments medium.

Money market: component of the financial markets for the short-term borrowing and lending with original maturities of one year or shorter time frames.

Money supply: in economics, the money supply or money stock is the total amount of money available in an economy at a particular point in time, including currency in circulation and demand deposits in the books of financial institutions.

Moving average: the moving average smoothes out values of consecutive observations to get rid of minor fluctuations. It is calculated over rolling periods of a certain number of days. In terms of technical analysis, this is used to define buy and sell signals.

Multiplier effect: the money multiplier effect results from the fractional reserve banking system, where only a fraction of deposits are withheld to cover withdrawals. Thus, each deposit is re-lent and re-deposited, resulting in an excess of money released into the economy when compared to the original deposit.

Negotiable Certificate of Deposit (NCD): traceable deposit issued by banks for funding.

Non-controlled clients: non-controlled clients provide a mandate to the participant to operate on their behalf and will only deal with a broker when they choose to trade.

Normal market: the market or term structure of futures markets where the futures price is above the spot price.

Offer price: see “ask price”.

Open outcry: a physical trading environment where traders use various signals and gestures to present bids and offers.

Option: derivative financial instrument that establishes a contract between two parties concerning the buying or selling of an asset at a reference (strike) price during a specified time frame. During this time frame, the buyer of the option gains the right, but not the obligation, to engage in some specific transaction on the asset, while the seller incurs the obligation to fulfil the transaction if so requested by the buyer. The price of an option derives from the value of an underlying asset plus a premium based on the intrinsic and time value until the expiration of the option.

Out-the-money: a state where the strike price exceeds the underlying asset price for call options and vice versa for put options.

Participant: a participant of the Central Securities Depository; for example, major South African banks. The CSD participants are the only market players who can liaise directly with STRATE.

Payment system: a payment system is a system for the transfer of money.

Price discovery: the method of determining the price of financial assets by examining supply-and-demand factors relating to the asset.

Price risk: changes in prices that pose a risk to banks.

Primary market: market for the initial or first issue of a financial instrument such as a Treasury bill.

Prospectus: a formal document to invite investors to take part in an issue, containing only factual and objective company information to enable prospective investors to make an informed decision.

Qualitative analysis: qualitative analysis refers to assessing information which is not quantified by numbers or metrics. In terms of company analysis, a qualitative study would examine competitive forces, management capability and the strength of the company's brand (for example).

Quantitative analysis: a measurement technique based on various finite numerical inputs.

Quote currency: the second currency quoted in a currency pair. With reference to a direct quote, the quote currency is the foreign currency.

Repo: see "repurchase agreement".

Repository: a central place in which an aggregation of data is kept and maintained in an organised manner.

Repurchase agreement: a means to raise short-term capital through a contract in which the seller of securities agrees to buy them back at a specified future date and price.

Repurchase agreement: also known as a Repo or Sale and Repurchase Agreement. This relates to the sale of securities together with an agreement for the seller to buy back the securities at a later date. The repurchase price will be greater than the original sale price, the difference effectively representing interest, called the repo rate.

Reserve currency: foreign currency held by central banks and other major financial institutions to service international debt obligations or influence the exchange rate (in the case of the central bank).

Residual claim: the claim to a company's assets after all other liabilities (senior debt) have been settled.

Resistance level: the historical price level which a security has not often breached in terms of upward price movement.

Retained earnings: retained earnings represent the portion of the company's net income held back for development, expansion or future liquidity. The balance is distributed to shareholders.

Return on equity: return on equity represents a measure of how well the company is using equity capital to generate a return. This measure is often used to evaluate the quality of management.

Reverse repo: also referred to as a buy/sellback, a reverse repo represents the purchase of securities with the agreement to sell them back at a higher price at a specified future date.

Risk-free rate (RFR): the theoretical rate of return from an investment with zero risk. Usually the risk-free rate of return relates to the return on government securities, as money can be printed to repay investors.

Secondary market: market for the trading of financial instruments, such as a Treasury bill, after the initial or first issue.

Secondary market: the market where investors purchase and sell securities from each other via a listed exchange as opposed to the issuing company.

Security: financial asset.

Settlement date: the date by which an executed trade must be paid for in return for delivery.

Speculating: the activity of accepting risk based on the assumption of substantial future cash profits.

Spot exchange rate: exchange rate applicable for immediate currency settlement.

Spot market: the market for immediate delivery.

Spot rate or price: the current or cash price of an asset.

Spread trading: a form of options trading where a combination of options are bought and sold at different strike prices and/or expiration dates.

Standard deviation: a measure of dispersion of a set of data around an observed mean.

Stock split: a decision made by a listed company to divide existing shares into multiple shares. The decrease in the associated share price is compensated for by investors gaining a proportionate number of shares.

STRATE: STRATE is the authorised Central Securities Depository (CSD) for the electronic settlement of all financial instruments in South Africa.

Strike price: see “exercise price”.

Subordinate debt: debt which ranks below senior debt with regard to a claim on a company’s assets.

Support level: the historical price level which a security has not often breached in terms of downward price movement.

Swap: an agreement to exchange of a set of cash flows, generally tied to the value of a debt instrument or the value of a foreign currency.

Swaption: an option to enter into an interest-rate swap (where interest rates are the underlying asset).

Sweeteners: attached financial instruments to debt issues in order to reduce the cost of financing for the issuer or make it more attractive to potential investors.

Systematic risk: is akin to market risk and represents risks which cannot be diversified out of a portfolio. Since the market portfolio contains all risky assets, it must represent the ultimate in diversification.

Technical analysis: the process of examining price, volume and momentum indicators to determine price trends in trading decisions. Technical analysis works on the assumption that past trends will continue into the future.

Terms currency: see “quote currency”.

Theta: theta is a measure of an option’s time decay or the rate at which the option value decreases as time expires.

Time decay: see “theta”.

Treasury bill: short-term government funding instrument.

Underlying asset: the asset on which a derivative contract is written.

Unsystematic risk: risk specifically pertaining to a particular share or financial asset.

Value date: see “settlement date”.

Variance: the sum of the average squared deviations from the mean. The variance is equal to the standard deviation squared.

Variation margin: the margin deposit required to restore the investor’s account to the initial margin.

Venture capital: start-up capital provided by investors in exchange for ownership, particularly where new entities do not qualify for finance. Venture capital may also come in the form of management or technical expertise.

Warrant: long-term equity call option issued and guaranteed directly by the issuing company. Warrants are issued with the purpose of lower financing costs for the issuer or as sweeteners to investors.

Weighted average cost of capital (WACC): the calculation of a company’s cost of capital and weighted according to its capital structure (debt-to-equity mix). The WACC is often used as a hurdle rate in respect of the required return in taking on new projects.

Working capital: the difference between a company’s current assets and current liabilities, measuring the company’s efficiency and short-term financial health in respect of servicing current liabilities.

Yield curve: relationship between short-term and long-term interest rates.