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Equity Market: An Introduction

Prof. Dr AP Faure

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Equity Market: An Introduction
1st edition
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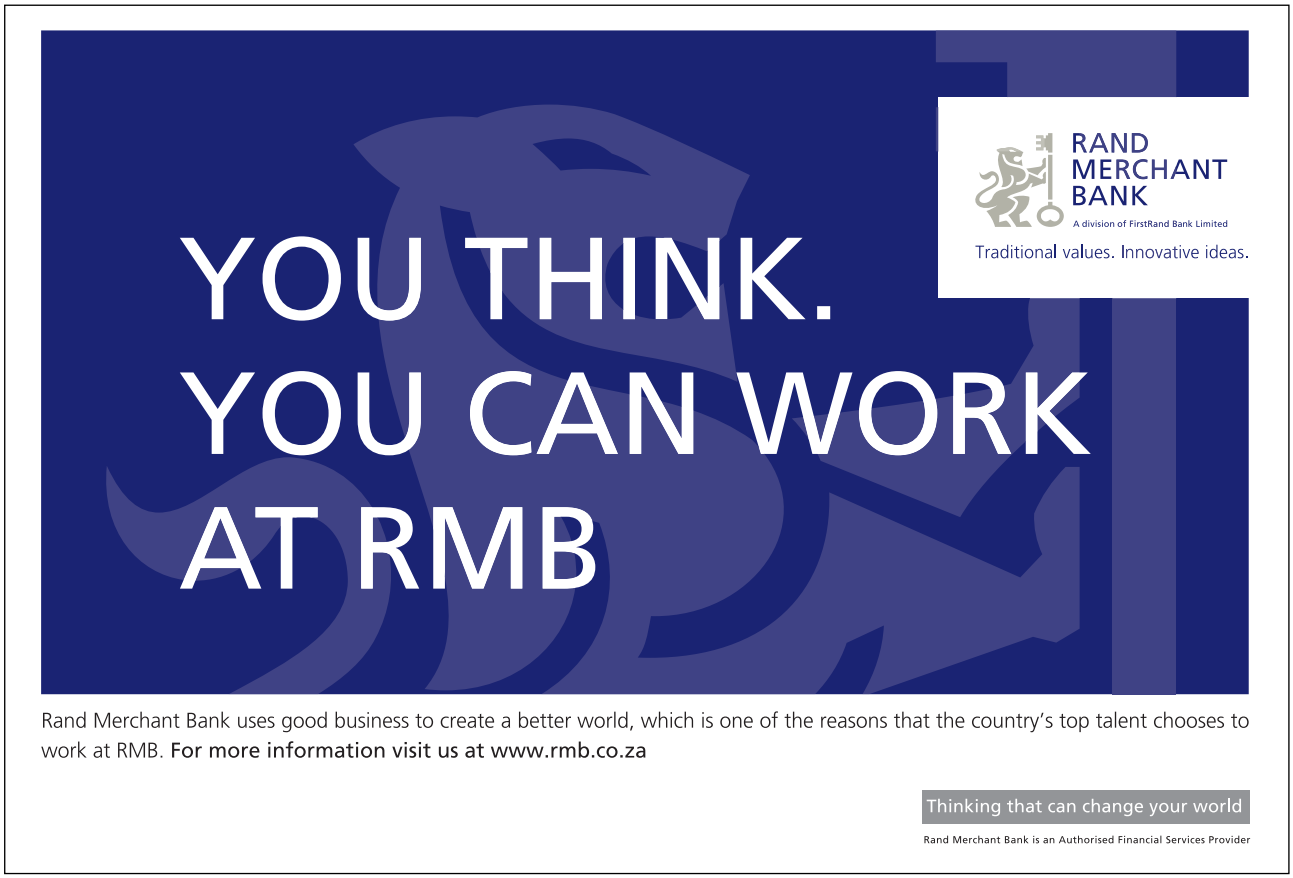

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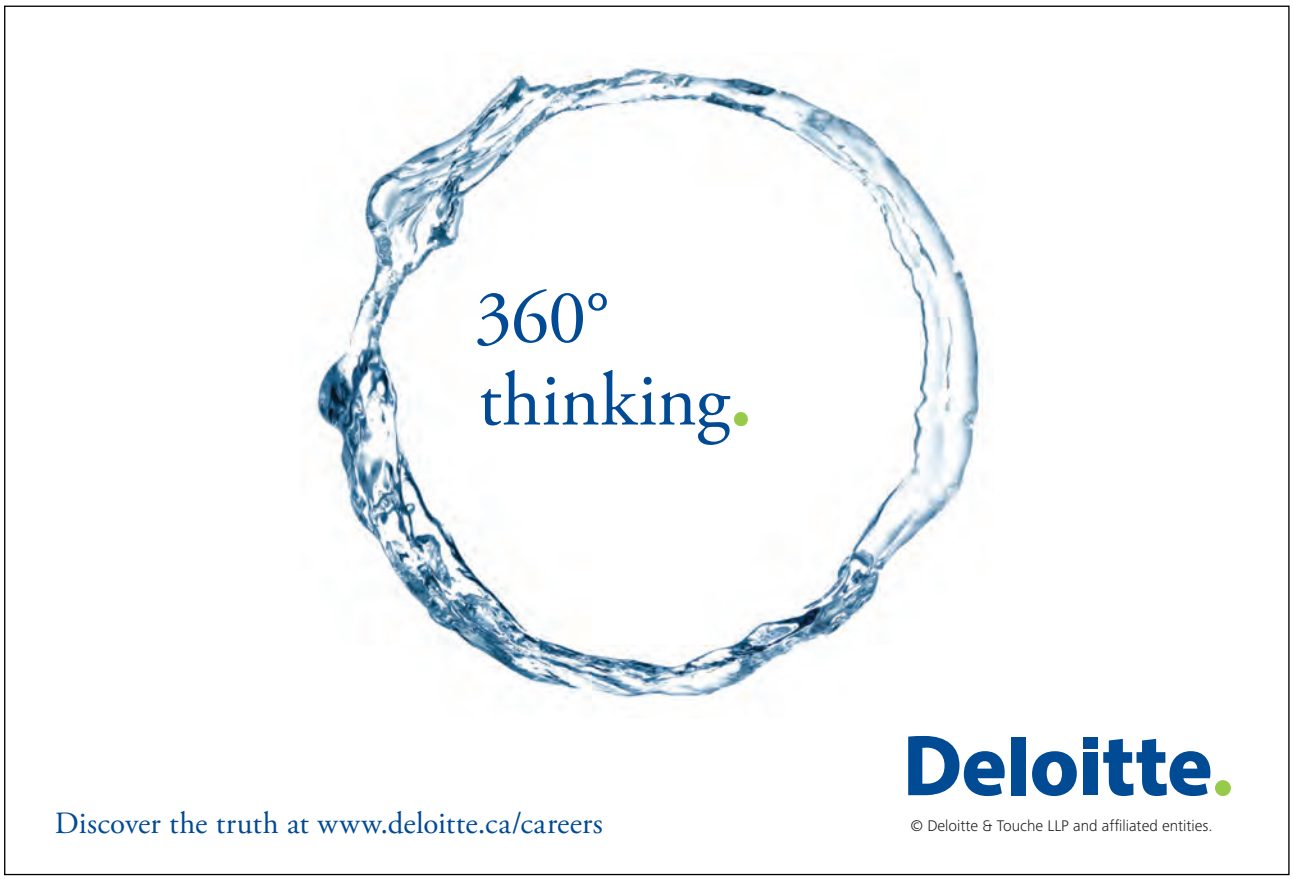

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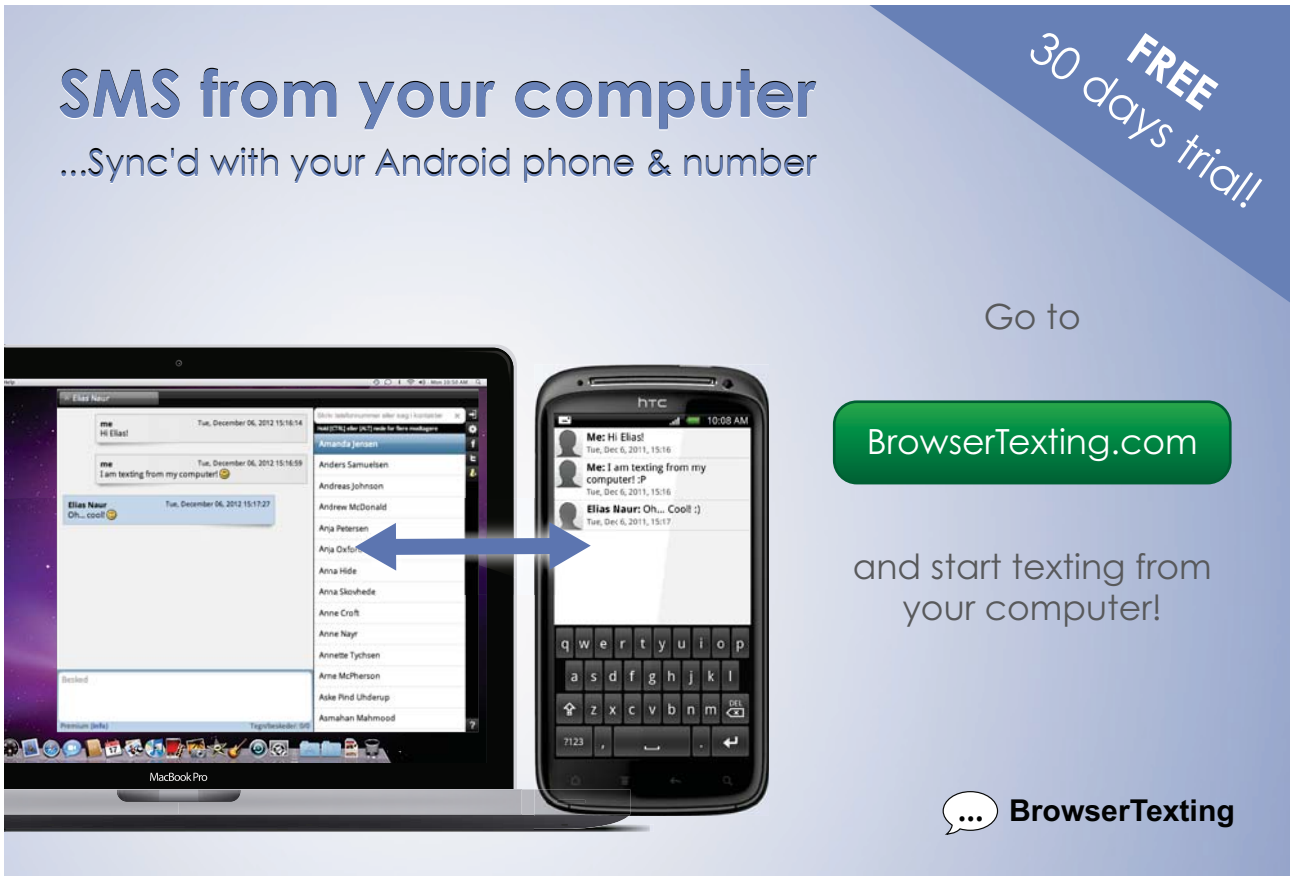

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1 Context & Essence

1.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Understand the slot the equity market occupies in the financial system.
2. Be acquainted with the general terminology of the equity market.
3. Dissect the equity market definition into its elements.
4. Appreciate the statutory backdrop to equities and the equity market.
5. Know of the existence of equity derivative instruments.

1.2 Introduction

The purpose of this text is to provide an overview of the equity market and its role in the financial system. We start with a brief introduction to the financial system, and then contrast the equity market with the money and debt markets. A definition of the equity market is presented and dissected into its elements. The statutory backdrop to equities and the equity market is presented in brief and the equity derivatives are merely mentioned for the sake of completeness.

The following are the sections:

- The financial system in brief.
- The money and bond markets in a nutshell.
- Essence of the equity market.
- Statutory backdrop to shares and share market.
- Equity derivatives.
- Summary.

1.3 The financial system in brief

As seen in Figure 1, the financial system is essentially concerned with borrowing and lending. Lending occurs either directly to borrowers (e.g. equities held by an individual) or indirectly via financial intermediaries (e.g. an individual holds units and the unit trust holds as assets the liabilities of the ultimate borrowers). Although this is the main function, there are many related others as reflected in the following definition of the financial system:

The financial system is a set of arrangements / conventions embracing the lending and borrowing of funds by non-financial economic units and the intermediation of this function by financial intermediaries in order to facilitate the transfer of funds, to create additional money when required, and to create markets in debt and equity instruments (and their derivatives) so that the price and allocation of funds are determined efficiently.

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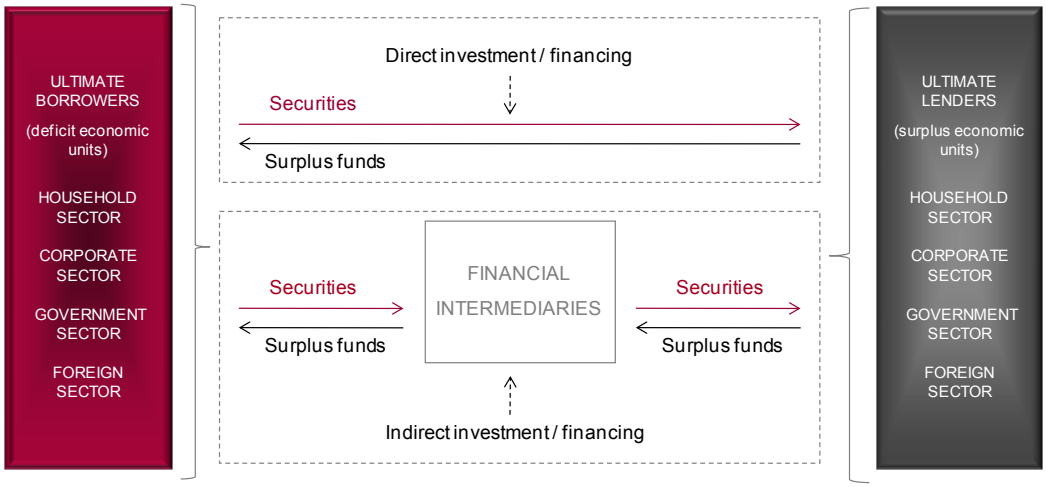

Figure 1: simplified financial system

Dissecting this definition reveals six essential elements:

- First: *lenders* (surplus economic units or supplies budget units) and *borrowers* (deficit economic units or deficit budget units), i.e. the non-financial economic units that undertake the lending and borrowing process. There are four groups of lenders and borrowers: household sector, corporate sector, government sector and foreign sector, and many members of these groups are lenders and borrowers at the same time.
- Second: *financial intermediaries* which intermediate the lending and borrowing process. They interpose themselves between the lenders and borrowers.
- Third: *financial instruments*, which are created to satisfy the financial requirements of the various participants; these instruments may be marketable (e.g. treasury bills) or non-marketable (e.g. participation interest in a retirement annuity).
- Fourth: the *creation of money* when demanded. Banks have the unique ability to create money by simply lending because the general public accepts bank deposits (= money) as a medium of exchange.
- Fifth: *financial markets*, i.e. the institutional arrangements and conventions that exist for the issue and trading (dealing) of the financial instruments.
- Sixth: *price discovery*, i.e. the price of equity and the price of money / debt (the *rate of interest*) are "discovered" (made and determined) in the financial markets. Prices have an allocation of funds function.

In this text on the equity market we will not cover *money creation* and the *genesis of short-term interest rates* (this takes place in the money market). We do cover the other elements briefly here as they form the context of the equity market. We begin with the financial intermediaries.

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The financial intermediaries that exist in most countries are shown in Box 1 in categories. The individual intermediaries or categories are then presented in Figure 2 in terms of their relationship to one another.

BOX 1: FINANCIAL INTERMEDIARIES

MAINSTREAM FINANCIAL INTERMEDIARIES

DEPOSIT INTERMEDIARIES

Central bank (CB)
Private sector banks

NON-DEPOSIT INTERMEDIARIES

Contractual intermediaries (CIs)

Insurers
Retirement funds

Collective investment schemes (CISs)

Securities unit trusts (SUTs)
Property unit trusts (PUTs)
Exchange traded funds (ETFs)

Alternative investments (AIs)

Hedge funds (HFs)
Private equity funds (PEFs)

QUASI-FINANCIAL INTERMEDIARIES (QFIs)

Development finance institutions (DFIs)
Special purpose vehicles (SPVs)
Finance companies
Investment trusts / companies
Micro lenders
Buying associations

The *financial instruments* issued by the ultimate borrowers and the financial intermediaries are also shown in Figure 2. They can be categorised into:

- debt instruments
- deposit instruments (which are a variation of debt instruments)
- equity instruments.

Our focus is on the latter.

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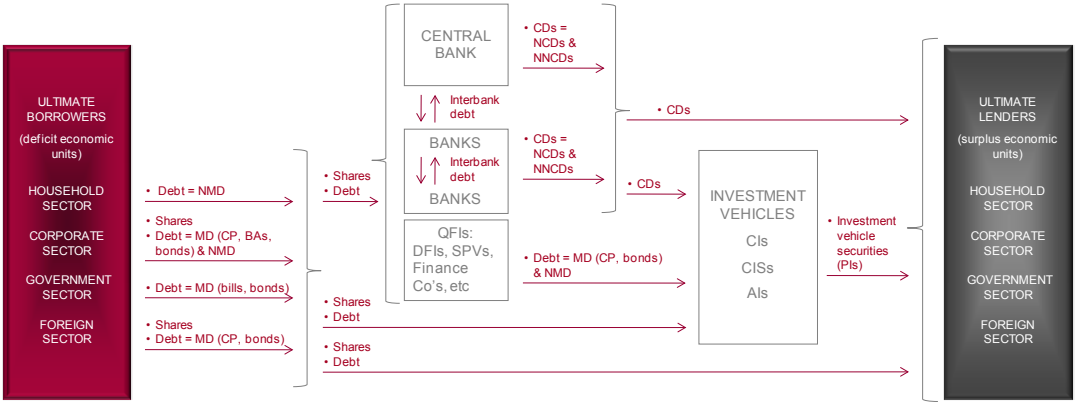

MD = marketable debt; NMD = non-marketable debt; CP = commercial paper; BAs= bankers' acceptances; CDs = certificates of deposit (= deposits); NCDs = negotiable certificates of deposit; NNCDs = non-negotiable certificates of deposit; foreign sector issues foreign shares and foreign MD (foreign CP & foreign bonds); PI = participation interest (units)

Figure 2: financial intermediaries & instruments / securities

If we combine deposit instruments with debt instruments there are two *financial markets*: the debt and equity markets. They are depicted in Figure 3 together with the foreign exchange market. Note that:

- The money market and the bond market which together make up the debt market are also known as the interest-bearing market and the fixed-interest market. The terms *interest-bearing* and *fixed-interest* oppose the debt market from the equity market because the returns on shares are dividends and dividends are not fixed – they depend on the performance of companies.
- The debt and equity markets make up the *capital* market; called as such because companies access long-term or permanent capital in these markets.
- The foreign exchange (forex) market is not a financial market, but a conduit for foreign investors into local financial markets and for local investors into foreign financial markets.

To the debt and equity (and forex) markets we may add the derivative markets. Although lending and borrowing also do not take place in the derivative markets, they play an important role in the financial system in terms of enabling participants in the real economy to hedge (thereby creating stability in production).

Financial markets can be categorised into primary and secondary markets. The former is the market for the issue of new securities and the latter the market for the trading of securities that are already in issue. It will be apparent that non-marketable debt (NMD) instruments only have primary markets (e.g. a participation interest in a retirement fund) and that marketable debt (MD) instruments are issued in the primary markets and traded in the secondary markets (e.g. treasury bills).

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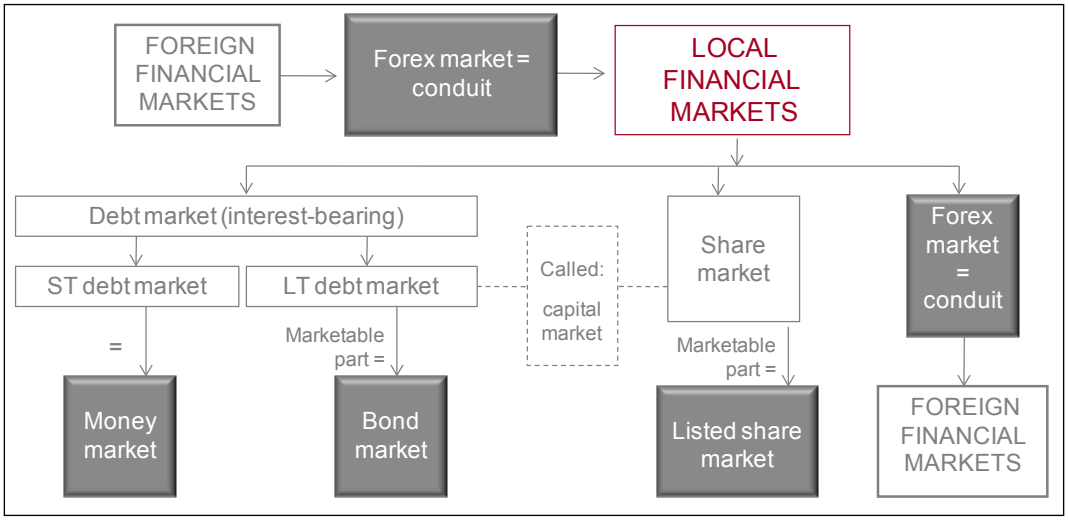

Figure 3: financial markets

Financial markets are either OTC (over the counter), such as the money market, or exchange driven, such as the equity market. Next we define the debt market which leads to a detailed description of the equity market.

1.4 The money and bond markets in a nutshell

The money market is usually defined as the market for short-term debt instruments and the bond market as the market for long-term debt instruments. However, the money market is more than this. It is comprised of the following markets:

- The primary markets that bring together the supply of retail and wholesale short-term funds and the demand for wholesale and retail short-term funds.
- The secondary market in which existing marketable short-term instruments are traded.
- The creation of new money (deposits) and the financial assets that lead to this (loans in the form of NMD and MD securities).
- The central bank-to-bank interbank market (cb2b IBM) and the bank-to-central bank interbank market (b2cb IBM) where monetary policy is played out and interest rates have their genesis (i.e. where repo is implemented).
- The b2b IBM where the repo rate has its secondary impact, i.e. on the interbank rate.
- The money market derivative markets (= an addendum).

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Thus the money market plays a crucial role in the economy including, as we shall see, in the equity market. As far as financial instruments are concerned it is essentially the short-term debt market (NMD and MD). The debt market's long-term arm is the long-term debt market and this is where the bond market fits. Unlike the money market where NMD and MD are included, in the bond market only long-term MD is included, which is the definition of bonds. Bonds are only issued by prime borrowers: government, parastatals, SPVs and large companies that have ratings acceptable to lenders / investors.

1.5 Essence of the equity market

1.5.1 Introduction

The equity market is part of the capital market (= bond and equity markets). The capital market is the market in which prime borrowers are able to access long-term and/or permanent funding. Two notes are required here:

- We also use the term "borrowers" for the issuers of equity because equity includes preference shares which in many markets are redeemable. (Strictly speaking an ordinary share represents part-ownership and not a debt of a company.)
- Equity is actually a wider concept that includes retained profits (reserves), but we use it to denote the marketable shares of listed companies.

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We define the equity market as follows:

The equity market is the mechanisms / conventions that exist for the issue of, investing in, and the trading of marketable equity instruments that represent the permanent or semi-permanent capital of the issuers (companies).

If this definition is dissected, we arrive at the following key words:

- Equities.
- Market mechanism.
- Issue (primary market).
- Investing.
- Trading (secondary market).
- Permanent or semi-permanent capital of the issuers.

Each of these key words will be explained briefly.

1.5.2 Equities

Equities (also called shares in this text) are issued by companies in terms of the statute that regulates them (usually called the Companies Act) and there are two types:

- *Ordinary shares* (also called common shares or common stock) that represent the permanent capital of companies; they have no maturity date (as such they are much like perpetual bonds).
- *Preference shares* (also called preferred shares or preferred stock). These shares may be redeemable (i.e. have a fixed maturity date), redeemable at the option of the issuer or non-redeemable (have no maturity date). The latter are sometimes called perpetual preference shares.

Shares pay dividends, as opposed to bonds and money market instruments that pay interest. Dividends on preference shares are usually fixed-rate dividends and they have preference over dividends on ordinary shares (explained in more detail later).

1.5.3 Market mechanism

The *market mechanism* is the structure, systems and conventions that exist to facilitate the issue and trading of shares. There are two types of market, i.e. the over the counter (OTC) market and the exchange-driven (and regulated) market. Most share markets around the world are exchange-driven markets.[1]

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1.5.4 Issue (primary market)

Shares are issued by companies, which may be local or foreign (see Figure 4). In most countries shares issued by foreign companies are rare, and they are usually called inward-listed shares or foreign shares. The original shares of companies are unlisted shares and are issued to the founders of the companies (this is the primary market).

The directors of companies only list the shares (and issue new shares) when they have established a good profit record and are able to comply with the listing requirements of the exchange. The main motivation for listing the shares on an exchange is to have the mechanism to acquire further capital easily and at a good price.

1.5.5 Investing

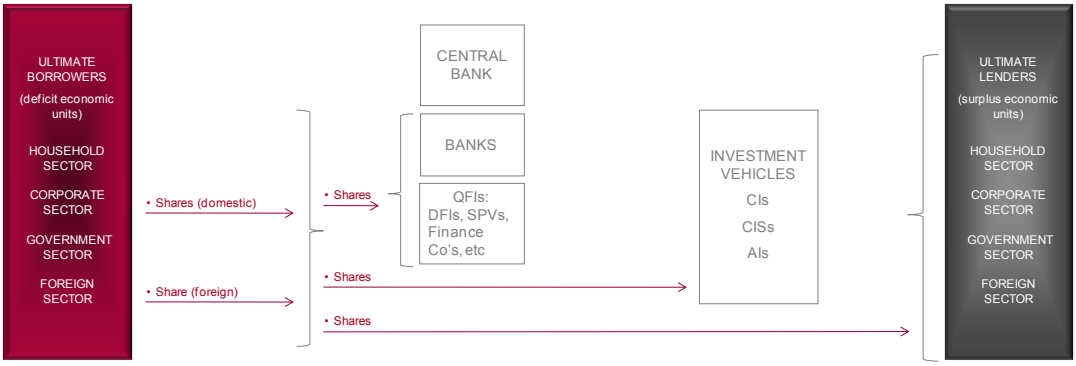

Figure 4: equity issuers & investors

The *investors* in (or holders of) equities are also depicted in Figure 4. In most countries all the ultimate lenders are holders of equity. The government holds equity in public enterprises. The foreign sector's involvement in the equity markets of countries differs widely. In some it is a large investor, while in others it is an insignificant investor. Generally speaking, the household sector is a small direct investor in equities; however, it is a large holder of equities via the investment vehicles.

All the mainstream financial intermediaries are investors in equities, with the exception of the central bank (and most of the QFIs). In most countries the largest holders of equities are the retirement funds (CIs), the long-term insurers (CIs), the securities unit trusts (CISs) and the exchange traded funds (CISs).

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1.5.6 Trading (secondary market)

Trading in shares (i.e. secondary market broking and dealing) is a sizeable business in most financial markets. As noted earlier, the majority of secondary share markets are exchange-driven. The secondary equity market participants are:

- *Members of share exchanges*. The members (also called users in some markets) of share exchanges are usually separately-capitalised subsidiaries of the *banks*, smaller companies owned by participants and individuals (who then have unlimited liability). The generic name we use here for all the members is *broker-dealers.*
- *Issuers of equity*. Companies not only supply equity to the market, but they are, in many countries, permitted to purchase their own shares and hold them as "treasury stock" or cancel them.
- *Investors.* As we have seen, the investors include all the ultimate lenders and certain financial intermediaries. Of the latter the major participants are the retirement funds, the insurers, the exchange traded funds and the securities unit trusts. In some countries the foreign sector plays a major role.
- *Speculators / arbitrageurs*. These may be members of exchanges (the members that only deal for themselves) or non-members. Most of them trade intra-day in order to avoid settlement outlays. Their usefulness lies in increasing the turnover in the equity market, thereby contributing to efficient price discovery.

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1.5.7 Permanent or semi-permanent capital of the issuers

Common shares and perpetual shares represent the permanent capital of a company. Preference shares (redeemable) and other forms of borrowing (for example bank overdraft facilities utilised in the case of smaller companies and the issue of bonds and commercial paper in the case of the larger companies) represent the semi-permanent capital of a company.

Permanent capital is the capital required to maintain the ongoing business of the company, to invest in plant and equipment and to hold the permanent core of inventories. The holders of common shares are rewarded by sharing in the profits of the company.

Redeemable preference shares are issued when temporary but medium-term funding is required. This medium-term funding is required in preference to bank loans. There are two main financial considerations (and inconveniences) in this regard:

- The uncertainty of obtaining funds at each rollover at maturity.
- The uncertainty of the rate of interest to be paid at each rollover date.

The ability to issue preference shares removes these uncertainties. The issuer has a fixed (i.e. a known) rate that is paid at known intervals and the funds are available for the full period required. Payments in some cases can be delayed (cumulative preference shares).

1.6 Statutory backdrop to shares and share market

Shares are issued by companies and companies are regulated under a statute (in most countries called the Companies Act). This statute defines a company and there are usually two types: private and public. Only the latter may be listed.

Most countries' statutes relating to companies also define / cover the following issues in respect of shares and the share market:

- Equity share capital (issued share capital and shares).
- Definition of share (a share in the share capital…).
- Register of shareholders.
- Transfer of shares.
- Dividends and reserves.
- Increase, decrease, conversion, consolidation, subdivision cancellation of shares.
- Payments to shareholders.
- Uncertificated securities.
- Preference shares.

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- Letter of allocation and rights offer.
- No offer for subscription to public without prospectus.
- No offer for sale to the public without prospectus.
- Matters to be stated in prospectus.
- Underwritten issues of shares.
- Voting rights of shareholders.
- Power of directors to issue share capital.

A share (usually called stock) exchange is licensed under a statute and this statute usually lays out the conditions for self-regulation which includes the skeleton of the Rules and Directives under which the members of the exchange operate.

1.7 Equity derivatives

In the many equity markets of the world there exist vibrant markets for the derivative instruments that have been created for the purpose of transferring interest rate risk / transforming assets and liabilities. The derivative instrument types are depicted in broad terms in Figure 5.

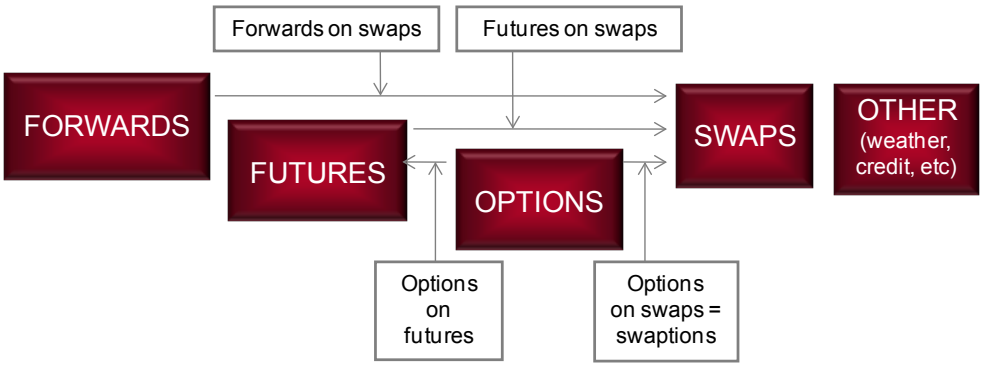

Figure 5: derivative instruments / markets

In the equity derivative markets we find:

- Forwards.
- Futures.
- Options:
  - options on "physicals"
  - equity warrants[2].
- Swaps:
  - equity-bond swaps.
- Hybrids:
  - options on futures
  - swaptions.

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1.8 Summary

There are two types of equity: common shares and preference shares. Equity represents the permanent or semi-permanent capital of the issuers (companies).

The equity market can be described as the mechanism / conventions that exist for the issue (primary market) of, investing in, and the trading (secondary market) of, equity instruments.

The statutory backdrop of equities and the equity market are the statutes that regulate companies and the share exchange. Most regulators embrace the concept of exchange self-regulation.

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2 Instruments

2.1 Learning outcomes

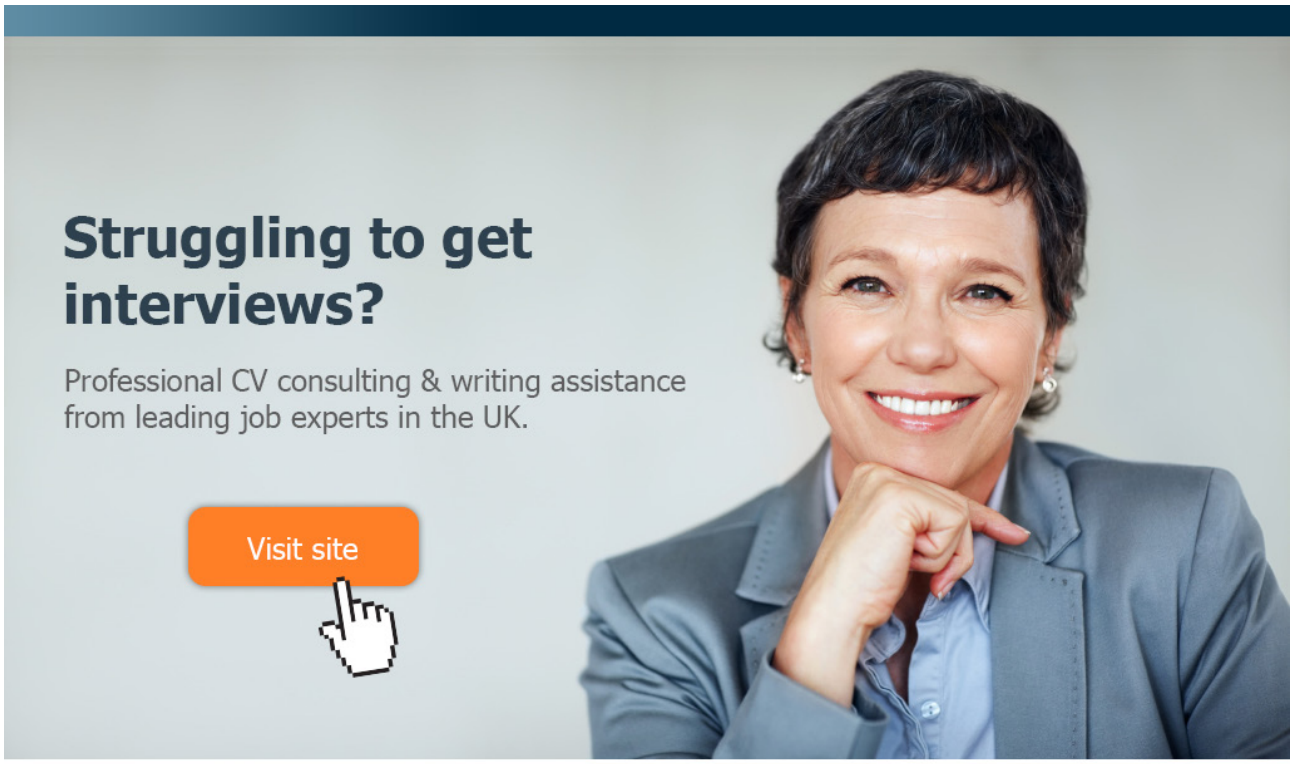
After studying this text the learner should / should be able to:

- Define the instruments of the equity market.
- Distinguish the types of ordinary shares.
- Describe the characteristics of ordinary shares in terms of residual value, voting rights, elastic dividend and limited liability.
- Appreciate the details of preference in respect of similarities with bonds, types, and usefulness.
- Describe the negotiable instruments representing equity.

2.2 Introduction

The instruments of the equity market are:

- Ordinary shares.
- Preferences shares.
- Negotiable instruments representing equity.



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2.3 Ordinary shares

2.3.1 Introduction

This section has to do with the *characteristics* of ordinary shares. Ordinary shares are the "usual" shares issued by companies (in many other countries called *common stock*). When the statute relating to companies refers to *shares* or *stock* it means *ordinary shares* or *common stock*.

The *characteristics* of ordinary shares covered in this section are as follows:

- Shares with par value, shares with no par value, and share premium.
- Residual value.
- Voting rights.
- Elastic dividend payments.
- Limited liability.

2.3.2 Shares with par value, shares with no par value, and share premium

Most company statutes allow for the issue of shares that have either:

- A par value.
- No par value.

The statute relating to companies of one particular country determines:

"The share capital of a company may be divided into shares having a par value or may be constituted by shares having no par value: Provided that all the ordinary shares or all the preference shares shall consist of either the one or the other."

Assets		Share capital and liabilities	
Bank deposits	100	Authorised share capital (3 000 shares of R1 each) Issued (100 shares of LCC1 each)	100
Total	100	Total	100

Table 1: Balance sheet of NEWCO (Pty) Limited (LCC[3])

Par value means *nominal value* or *face value*, and they all denote that the share has an "original value", or a value when the company was set up, and this amount is printed on the face of the certificate (or computer-generated statement in the case of a dematerialised market). For example, a person may set up company, say called NEWCO, with a share capital of 100 shares of LCC1 each. The accounting entry for this capital is *share capital* of LCC100 and the counterpart of this, i.e. the asset, is a bank balance of LCC100, as indicated in Table 1.

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An example of a share certificate is presented in Box 1 to illustrate this issue. The capital of the company is GBP200 000, made up of 200 000 shares of GBP1 each. GBP1 is the par value of the shares.

Assets		Share capital and liabilities	
Bank deposits	2 000 100	Authorised share capital (3 000 shares of LCC1 each) Issued (2 100 shares of LCC1 each) Share premium	2 100 1 998 000
Total	2 000 100	Total	2 000 100

Table 2: Balance sheet of NEWCO (Pty) Limited (LCC)

Assuming that NEWCO is successful and the directors decide to issue new shares (from the balance of 2 900 shares left of the *authorised share capital* of 3 000 shares) to other shareholders, they may issue, say, 2 000 new shares at LCC1 000 each. In this case the shares have an unchanged par value of LCC1, and a *premium* of LCC999. The company receives LCC2 000 000 for the shares (2 000 shares × LCC1 000), and the balance sheet of the company changes as shown in Table 2 (it obviously ignores all the other balance sheet items).

BOX 1: EXAMPLE OF AN ORDINARY SHARE CERTIFICATE

No. 1622 100 Shares.

Blaauwbank United Gold Mining Company

LIMITED.

CAPITAL £200,000, IN 200,000 SHARES OF £1 EACH.

Registered under the Limited Liability Act of the South African Republic.

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Johannesburg, 18th april 1888

SECRETARIES. DIRECTORS.

Source: AP Faure collection.

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All statutes relating to companies allow for a share premium. An example follows[4]:

"Where a company which is not a banking institution in terms of the Banks Act…issues shares at a premium, whether for cash or otherwise, a sum equal to the aggregate amount or value of the premiums on those shares shall be transferred to an account to be called the 'share premium account', and the provisions of this Act relating to the reduction of the share capital of a company shall, except as provided in this section, apply as if the share premium account were paid-up share capital of the company."

Shares may be *split into smaller denominations*, and the split value becomes the par value. For example, the LCC1 shares referred to above may be split into denominations such as 50 cents or 1 cent or 0.001 cent and so on.

Shares of no par value are shares that do not have a face value. These shares therefore cannot be issued at a premium. In the case of this type of ordinary share the share capital account is styled *stated capital account*. An example of a statute that allows for this share type follows[5]:

"The whole of the proceeds of an issue of shares having no par value shall be paid-up share capital of a company and shall be transferred to an account to be called the 'stated capital account'."

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It should be apparent that in the case of a new company issuing 3 000 shares of no par value at LCC150 each, its first balance sheet would appear as shown in Table 3.

Assets		Share capital and liabilities	
Bank deposits	450 000	Stated capital	450 000
Total	450 000	Total	450 000

Table 3: Balance sheet of NEWCO (Pty) Limited (LCC)

2.3.3 Residual value

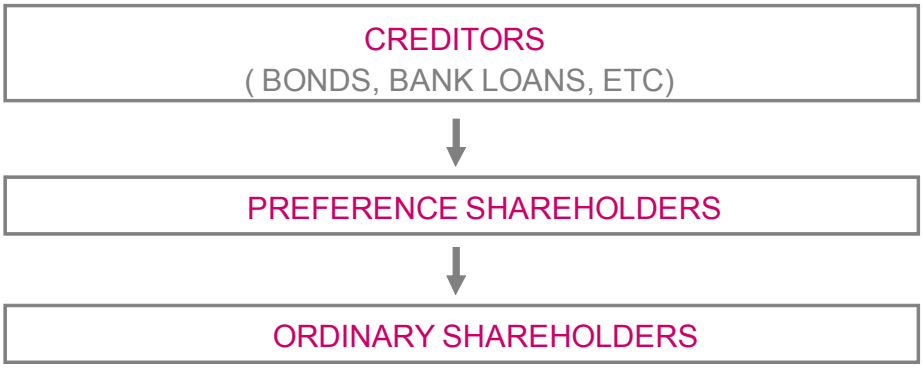

Figure 1: waterfall of claims on company in event of liquidation

Ordinary shares only have a *residual value*, or *residual claim status*. This means that in the pecking order (or waterfall) of risk, creditors (providers of credit / loans) are favoured, followed by preference shareholders, in turn followed by ordinary shareholders, and this applies in the cases of *claims on profits* and *claims on the assets* of the company in the event of liquidation (see Figure 1).

It will be evident that *bondholders* are *creditors* of the issuing companies. They are not owners of the issuing companies, but they have a superior claim on the issuing companies' profits and assets, relative to the ordinary shareholders. This fact is depicted in Figure 2.

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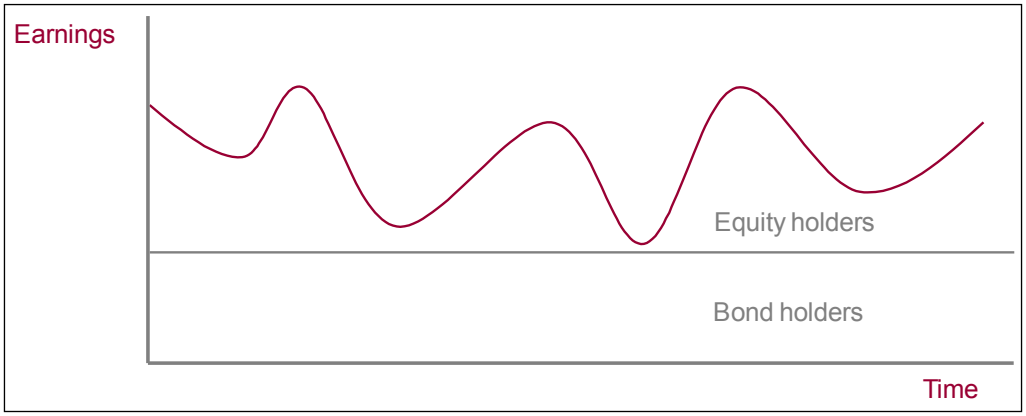

Figure 2: split of earnings between equity and bond owners of a company

2.3.4 Voting rights

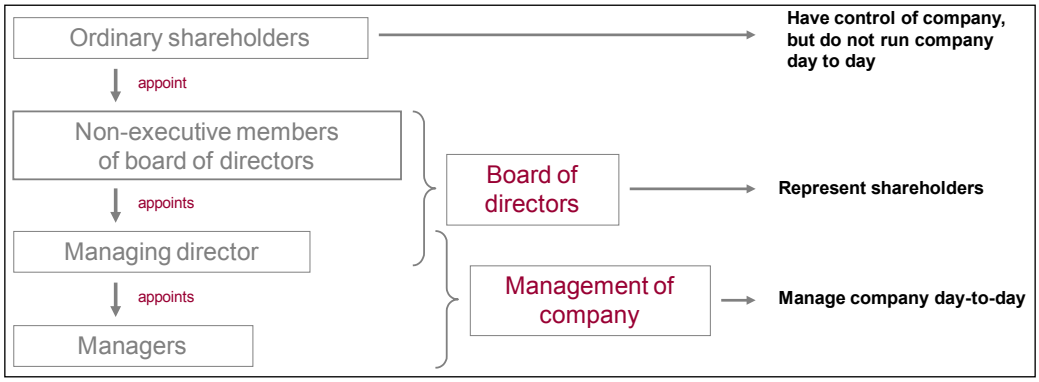

Figure 3: control and management of companies

While *ordinary shareholders* are at the bottom of the waterfall of risk in terms of claims on profits and assets, they have the privilege of *voting rights*. Generally speaking (i.e. in the case of listed companies), ordinary shareholders do not control the daily activities of companies. This is left the managers of companies, who are appointed by the managing director, who in turn is appointed by the board of directors, who in turn are appointed by the ordinary shareholders. This may be depicted as in Figure 3.

Thus, ultimately, the *ordinary shareholders are in control of the fortunes of the company*. They appoint the board of directors to *direct* the company and they are selected for their skills and abilities that are fitting for the company. The board elects the managing director on behalf of the shareholders for his skills in the type of business the company is involved in.

Typically one share has one voting right. However, many company statutes allow for the existence of different classes of ordinary shares in terms of voting rights. There are different names for these shares such as:

- "N" shares and ordinary shares.
- Class A and Class B shares.

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For example, Class A shares may carry one vote, while Class B shares may have one-tenth of a vote. An alternative to this arrangement is limiting the extent to which the "inferior" shares may elect the board of directors. For example, Class A shareholders may elect 90% of the board members, leaving only 10% to be elected by the Class B shareholders.[6]

Ordinary shareholders exercise their voting rights at the *Annual General Meetings* (AGMs) that companies are required to hold in terms of statute or *General Meetings* that may be called by the company or the shareholders. It is notable that ordinary shareholders may only call a *General Meeting* if they collectively hold 10% or more of the voting rights (this varies from country to country).

In the case of most listed companies, ordinary shareholders do not attend the AGM. They usually *exercise their voting power by proxy voting*. This is given effect by the company attaching a proxy form to the *Notice of Annual General Meeting* that is sent to each shareholder. Most shareholders do not even bother to complete the proxy. Clearly, in the case of a badly performing company, shareholders will either attend the AGM or appoint a proxy to represent them.

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2.3.5 Elastic dividend payments

Although ordinary shareholders are the lowest head on the totem pole in terms of claims on the company's assets, they share in the net worth of the company, which may be substantial. The ordinary shareholders are the owners of this net worth, i.e. the assets of the company after allowing for all other claims (preference shareholders, creditors, tax owed). Clearly thus, while bondholders have a prior right in relation to ordinary shareholders, they only are entitled to a fixed interest payment (usually), while the latter share in the financial success of the company.

The profits of companies are paid to shareholders in the form of dividends (after tax), and the dividends received may, of course, be substantial if the company is highly profitable. However, there is no guarantee of a dividend. Thus, unlike bondholders, ordinary shareholders have no legal claim if a dividend is not paid.

The *decision on whether a dividend should be paid* and the magnitude of the dividend to be paid rests with the *board of directors* of the company. The decision is influenced by a number of factors, including:

- Whether the company will be more profitable in future by investing its profits in new equipment or new projects.
- The tax rate on dividends paid by the company (if this exists[7]).
- The tax rate on dividends paid by the shareholder (if this exists).
- The tax rate on capital gains (applicable in many countries).

2.3.6 Limited liability

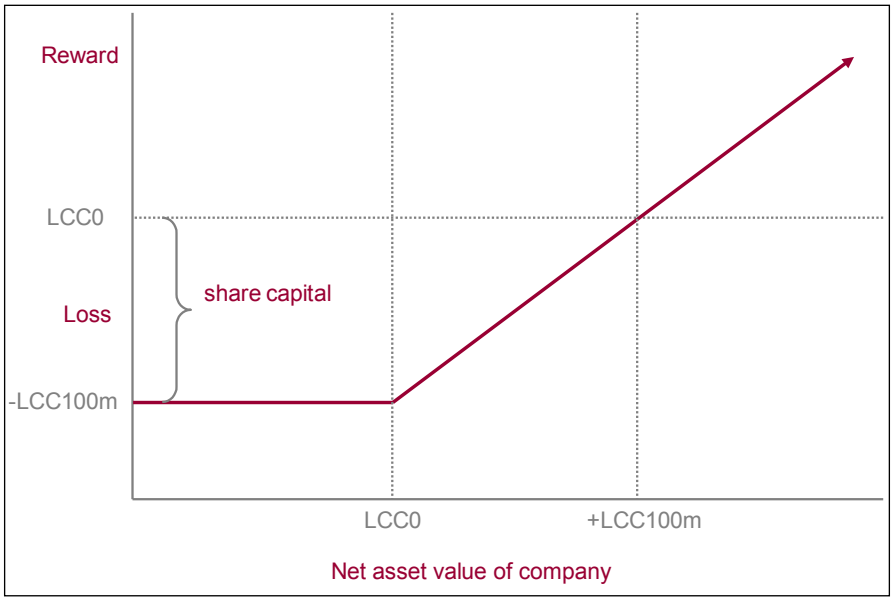

Figure 4: risk-reward profile of ordinary shareholders

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A pertinent characteristic of ordinary shares is that shareholders have *limited liability in terms of the debt of the company*. Legally, ordinary shareholders are not responsible for the debt of the company; their liability ends with the loss of the share capital of the company, i.e. their investment in the ordinary shares of the company. But the potential for gain for ordinary shareholders is unlimited. The limit of their loss and their unlimited potential for gain may be depicted as in Figure 4 (it will be noted that this risk-reward profile is similar to that of a call option).

If the ordinary share capital of a company is equal to LCC100 million, this is the amount that the ordinary shareholders stand to lose if the debt of the company exceeds LCC100 million. It will be clear that if the debt is LCC50 million, then the net asset value (NAV) is LCC50 million, i.e. the ordinary shareholders lose lost LCC50 million in the event of liquidation. It will also be apparent that if the NAV increases to LCC200 million, the shareholders have gained LCC100 million in value (this assumes that the share price equals the NAV per share).

2.4 Preference shares

2.4.1 Introduction

It was seen earlier that there are only *two types of shares* that companies may issue, i.e. ordinary shares and *preference shares* (termed *preferred stock* in some other markets such as the US). Preference shares are covered by the company statutes of countries. In terms of redeemability (maturity) there are three types of preferences shares:

- Compulsory maturity.
- Maturity at the option of the issuer company.
- No maturity (the perpetual preference share).

Characteristic	Ordinary shares	Bonds	Preference shares
Represents ownership of company	Yes	No	Yes
Fixed periodic payment	No	Yes	Yes (usually)
Dividend payment	Yes	No	Yes
Senior risk status	No	Senior to all	Senior to ordinary shares
Voting rights	Yes	No	No*
Fixed maturity date	No	Yes	Yes & No
Can force liquidation	No	Yes	No
Convertibility option	No	Yes	Yes
*Usually not, but there are exceptions			

Table 4: Preference shares: similarities to ordinary shares and bonds

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One country's[8] Companies Act, for example, provides that a:

"…company may determine that any preference shares shall be issued on the condition that they are, or are at the option of the company, liable to be redeemed."

Preference shares have characteristics of bonds and shares, and can thus be termed *hybrid securities*. Their similarities / differences to shares and bonds are shown in Table 4.

The three types of preference shares in terms of maturity can have one or more characteristics which are outlined below after we describe the common preference share. The following are the sections:

- The "normal" or "common" preference share.
- The non-cumulative preference share.
- The participating preference share.
- The convertible preference share.
- Preference share hybrids.

We then conclude with a discussion of the advantages of preference shares.

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BOX 2: EXAMPLE OF A PREFERENCE SHARE CERTIFICATE

Source: www.stocksearchintl.com.

2.4.2 The "normal" or "common" preference share

The typical preference share is the one that carries a fixed rate of interest, called a *fixed dividend*. The dividend is paid either annually or six-monthly. These preference shares are thus *non-participating*, and are *cumulative*.

Non-participating means that the preference shareholder does not receive any payments in addition to the contracted fixed dividend or participate in the profits of the company, as do ordinary shareholders.

Cumulative means that if the company does not pay the dividend, it is in arrears in this respect, i.e. it remains liable for the dividend. Clearly this dividend must be honoured before payments of dividends are made to ordinary shareholders.

It is notable that some preference shares are also issued with an obligation to pay a *floating dividend*. In this case, the dividend is linked to some benchmark rate such as prime rate, the treasury bill rate and the call money rate (the average of a number of banks' rates).

The price / value of the fixed rate, fixed redemption date preference share is calculated according the bond pricing formula.

2.4.3 The non-cumulative preference share

Preference shares can also be non-cumulative. This simply means that passed-up dividends are not cumulated, i.e. are never paid.

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2.4.4 The participating preference share

The common preference share is non-participating. *Participating* preference shares are where the holder participates in the profits of the company in ways other than the fixed dividend. There are essentially two types of *participating* preference shares:

- The shareholder receives a bonus dividend payment in the good years. The basis for this may or may not be predetermined.
- The shareholder shares in the profits as do the ordinary shareholders.

It will be apparent that participating preference shares are more expensive than the common preference shares.

2.4.5 The convertible preference share

Preference shares may also be issued with an option for conversion into other securities, but usually the shares of the company. The basis of conversion, i.e. the terms, is usually predetermined.[9]

2.4.6 Preference share hybrids

Hybrids of the above also exist. For example, a company may decide to issue preference shares that are participating, non-cumulative and convertible.

2.4.7 Advantages of preference shares

There are a number of advantages and disadvantages pertaining to preference shares for both companies and the holders:

- Preference shares are a convenient borrowing tool in the case where companies wish to borrow for short periods (a few years) as opposed to their seeking permanent capital (ordinary shares). Obviously this only applies in the case of non-convertible preference shares.
- Companies can accumulate dividends. In difficult years, when it is not financially propitious to pay dividends, companies can miss the dividend, and have no concern of being put into liquidation (this may only be brought about by creditors). However, a passed-over dividend detracts from the image of the company; the company that misses a preference share dividend may have difficulty in raising capital thereafter.
- In many countries preference share dividends are not taxed in the hands of the holder. However, in this case companies cannot deduct preference dividends from income for tax purposes, as they may in the case of the payment of interest on bonds.
- Preference share funding is cheaper than bond issues. Because preference share dividends are not taxed in the hands of the holder the dividends (rates) payable on these instruments are lower than the rates payable on equivalent term bonds.

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2.5 Negotiable instruments representing equity

2.5.1 Introduction

Negotiable instruments representing equity are not derivatives of equities, but *instruments that represent the right to equities*, and they are tradable instruments in their own right. They are as follows:

- Letters of allocation.
- Certified transfer deeds.
- Share transfer receipts.
- Balance receipts.
- Warrants.

2.5.2 Letters of allocation

Letters of allocation (also called *letter of rights* and *nil-paid letters*) are a form of option on specific equities. In terms of the company statute, when a company requires further capital in the form of the issue of ordinary shares, it is obliged to offer the additional equity to *existing ordinary shareholders in proportion to their existing holding*. The company is said to be making a *rights offer* or a *rights issue* of additional equity.

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The company makes the offer by the issue of a *letter of allocation*. The letter specifies the subscription price and the expiration time of the offer (which is usually short – a few weeks – from the issue date of the letter). Thus the shareholder has the right to buy the shares offered, but is not obliged to take up the offer. The shareholder does not pay for the letter (option), but the letter has a value, depending on the price specified in the letter relative to the market price, as well as expectations of the future price of the share. These letters are listed by, and traded on, the share exchange.

The take-up of the offer is a function of the price of the offer relative to the market price of the share. If the rights offer price is below the market price, the offer is usually taken up and the shares held or sold.

2.5.3 Certified transfer deeds

A *securities transfer deed* (STD) is the instrument prescribed by the statute relating to companies for the transfer of securities from one name to another. In many countries there are two types, distinguished by colour; here we assume white and blue.

The white STD is used for the normal transferring of shareholding from one beneficial owner to another. The blue STD is issued by companies (or their Transfer Secretaries – TS) under certain circumstances. For example, if a broker requests a TS to split a LCC10 million par value Company ABC share certificate, and this cannot be effected immediately, the TS will complete 10 blue STDs for say LCC1 million each and stamp them with an official stamp. The STD is now (usually) called a *certified securities transfer deed* (CSTD) and may be traded as bearer equity.

It will be evident that under a *dematerialised system*, where an electronic entry in a register/s represents evidence of ownership, this instrument will become extinct.

2.5.4 Share transfer receipts

Another alternative to the share certificate is the *share transfer receipt* (STR). When shares are lodged for transfer and this cannot be immediately given effect, the TS may issue STRs in the denominations required. When accompanied by a STD the STRs are negotiable.

As in the case of the certified transfer deed, under a dematerialised system, where an electronic entry represents evidence of ownership, this instrument will disappear.

2.5.5 Balance receipts

A balance receipt, as the wording depicts, is a receipt showing the balance of shares. For example, if an equity deal for LCC1 million is transacted, and the seller only has a LCC10 million denomination certificate, this will be lodged with the TS together with a STD for LCC1 million.

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If the transfer cannot be given effect immediately, and the seller wishes to trade the balance of LCC9 million, the TS will issue a *balance receipt* for LCC9 million. This receipt is tradable when accompanied by a STD.

It will be apparent (as in the above cases) that this instrument will die out under a dematerialised system.

2.5.6 Warrants

The warrant, being similar to an option, should perhaps be discussed under derivatives. However, because it is only a *call* option (in most cases) and represents a call on *new equity* (also in most cases), we regard it a negotiable instrument representing equity.

Warrants are call options issued by a company to purchase a specified number of shares in the company at a specified price before a specified date in the future. The main differences of warrants compared with traded options are:

- They are written by the issuing company.
- They have a longer lifespan that traded options (usually two to three years).
- They involve new equity issues by the company upon exercise.

The above describes the standard warrant, i.e. single equity warrant, which is a call warrant on new shares. Internationally, there are deviations from the standard warrant. Examples are:

- Covered warrant – where a banker (that operates in this market) acquires the underlying shares for the express purpose of issuing the warrant.
- Low exercise price warrants.
- Capped warrants – low exercise price warrants where the upside gain is capped.
- Instalment warrants – where the shares are purchased in instalments.
- Endowment warrants.
- Capital plus warrants.

South Africa boasts a substantial warrant market.[10] However, the warrants in this market are *not standard warrants*, but *retail options*. Thus they belong under the heading of *derivatives.* The South African call "warrants" are not tied in with new issues of shares. Both call and put warrants (options) are available on specific shares and indices, and all are settled in cash. There are also basket warrants (options) available, which are warrants (options) written on the shares of a group of different companies that are involved in a similar sector.

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To confuse the matter further, there exists (internationally) a *discount warrant*, which is a hybrid of the *common / real warrant* and the South African *retail option*. With this hybrid the holder receives *either cash* or *the underlying share upon exercise,* and this depends on the market / closing price of the underlying share on expiry:

- Closing price ≥ is pre-specified target level: the holder obtains a cash settlement.
- Closing price < the target level: the holder receives the underlying share.

In summary, there are three types of warrants:

- Common warrants (tied to the issue of new shares).
- Warrants which are retail options (not tied to the issue of new shares).
- Discount warrants (tied to the issue of new shares under certain circumstances).

2.6 Summary

Ordinary shares are the essence of the equity market. The majority have a par value (and most a share premium if listed). They stand last in the waterfall of claims on the company, but have voting rights and share in profits to an unlimited extent.

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Preference shares have preference to dividends over ordinary shares, but profit sharing (in most cases) is limited to the coupon. There are many different types of preference shares, which include characteristics such as *participating*, *cumulative* and *convertible*.

There are a number of negotiable instruments representing equity, the best known of which is the letter of allocation (rights issue).

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3 Investors

3.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Appreciate the ownership distribution of equities.
2. Analyse the motivation for holding equity.
3. Outline the statutory environment of investors.
4. Describe the various measures of return.
5. Describe the related concepts of return.
6. Describe the concept of risk.
7. Discuss the risk predisposition of investors.
8. Describe the measurement of risk.
9. Appreciate the relationship between risk and return.

3.2 Introduction

In this section we discuss the issues surrounding the investors in equities, including the concepts of risk and return in the equity market. The following are the main sections:

- Ownership distribution.
- Motivation for holding equity.
- Statutory environment of investors.
- Measures of return.
- Other concepts of return.
- Risks faced in holding financial assets.
- Risk predisposition or preference.
- Measurement of risk in the financial markets.
- Relationship between risk and return.
- Risk and return: the record.

3.3 Ownership distribution

Any discussion on the ownership distribution of equities should be done within the framework of the financial system; this is depicted in Figure 1.[11]

Equities are *issued by companies* (mainly local and to a small degree foreign) and held by:

- Certain financial intermediaries.
- Certain ultimate lenders.

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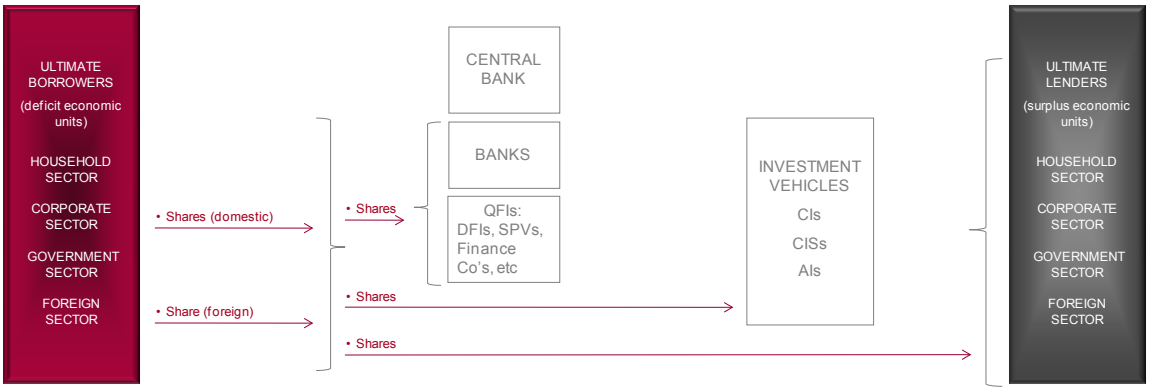

Figure 1: equity issuers & investors

DEPOSIT INTERMEDIARIES	
Central bank (CB)	0%
Private sector banks	<1%
NON-DEPOSIT INTERMEDIARIES (INVESTMENT VEHICLES)	
Contractual intermediaries (CIs)	
Insurers	40%
Retirement funds	40%
Collective investment schemes (CISs)	
Securities unit trusts (SUTs)	10%
Property unit trusts (PUTs)	0%
Exchange traded funds (ETFs)	8%
Alternative investments (AIs)	
Hedge funds (HFs)	2%
Private equity funds (PEFs)	<1%

Table 1: Estimated proportional investment in equities by the mainstream financial intermediaries

In most countries ownership distribution numbers of listed equities are not readiwy available for all the financial intermediaries. However, it is safe to assume that central banks are not holders at all and that the QFIs (probably only investment trusts / companies) and the private sector banks are relatively small holders of listed equities. This leaves the investment vehicles as the main holders (of the financial intermediaries), i.e. the contractual intermediaries, collective investment schemes and the alternative investments (hedge funds specifically).

It is safe to assume the numbers indicated in Table 1 is a fair reflection of the holdings of equities[12]. The insurers (long-term insurers mainly) and the retirement funds are the largest holders by a large margin. Next in line is the unit trust industry with about 10%, followed by the ETFs with about 8%. The hedge funds hold the balance of around 2%.

The split of the holding of equities between financial intermediaries and the ultimate lenders is not known, but an estimate of 30% / 70% respectively would not be unreasonable.

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Of the ultimate lenders, it is safe to assume that the government sector is not a large holder of listed equities. It does hold equity in parastatals, some of which are listed. This leaves the foreign sector, the corporate sector and the household sector.

The foreign sector in many countries is a large holder of listed equities, but no clean data is available on their holdings. The corporate sector will also be a holder of listed equities as many listed companies have listed subsidiaries, but its holding will not be large.

The household sector is also large holder of equities. Many individuals have portfolios that are managed by themselves (of course because equities can be purchased in small denominations), by their stockbrokers and by fund managers. As in the case of the foreign and corporate sectors, numbers are not available in this regard.

3.4 Motivation for holding equity

The motivation for holding equity (and investment horizon) differs from investor to investor. The *household sector* (individuals) may hold equity for speculative reasons (short term horizon), to invest to earn a return for a special holiday planned for 5 years' time (medium term horizon), or for retirement reasons (long-term horizon).

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Companies may hold equity in subsidiaries (long term) or, in the case of investment companies / trusts, for investment reasons on behalf of their shareholders (medium-term to long-term). The *foreign sector* may hold equity for a variety of reasons, such as long-term strategic holdings, making short-term capital gains, making a gain on the currency, or because the prices of local shares are inexpensive relative to their home equity market or other international equity markets.

Banks are small holders, and may also hold equity for a number of reasons, the main one being opportunistic profits (i.e. speculation). The *contractual intermediaries* and *CISs*, however, hold equity for long-term investment reasons. They are the custodians of much of the wealth of the nation, and because their funds under management increase continuously, they are permanent and increasing holders of equity.

In all the above cases, the other issue that influences decisions in respect of equity investment is of course the tax regime: tax rates and type of tax (capital gains, tax on dividends on investment vehicles and on individuals.

The common reason for all of the above holding equity is the *return* enjoyed in the long-term. Equities deliver superior returns relative to the other asset classes in the long-term. This significant issue is exploited in some detail later.

3.5 Statutory environment for investors

As noted above, the holders of equity may be categorised as follows:

- Ultimate lenders:
  - Household sector.
  - Corporate sector.
  - Government sector.
  - Foreign sector.
- Financial intermediaries:
  - Banks.
  - Investment vehicles:
    - CIs
    - CISs
    - AIs.

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The household sector (individuals) is not constrained by any statutes in terms of their investment in the equity market. The same applies to the *corporate sector* (in their case there will of course be internal controls in this regard). The *government sector* holds equities mainly in public enterprises and there are no constraints in this regard. The *foreign sector* will be constrained by statutes applying in their respective countries.

For the *financial intermediaries*, there is an extensive statutory environment. The *banks* are constrained by the capital and other requirements of the banking statute.

The contractual intermediaries and the CISs have constraints placed on their equity investments and exposures to single companies under the statutes that apply to them.

3.6 Measures of return

3.6.1 Introduction

Risk is ever-present in all financial markets, and there is a trade-off between risk and return. As such it is important to understand these concepts and how to measure them. We consider the sources of return and explain how to measure *historical*, *average historical*, and *expected return*, and then elucidate the concept of *risk* and how to measure risk.

There are various ways in which returns may be computed. Here we consider:

- Holding period return (HPR).
- Annualised HPR.
- Arithmetic mean return.
- Geometric mean return.

3.6.2 Holding period return

The *sources of return* are twofold:

- Income (dividends in the case of equity; interest in the case of the debt market)
- Change in price (capital gain or loss).

The time an investment is held is the *holding period* (HP); *holding period return* (HPR) is therefore:

$$HPR = (\text{price change} + \text{income}) / \text{purchase price}.$$

This may also be written as:

$$HPR = [(P_1 - P_0) + I] / P_0$$

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where:

P_0 = purchase price of share
P_1 = selling price of share
I = income amount.

Example:

I = LCC10
P_0 = LCC100
P_1 = LCC115

HPR = [(115 – 100) + 10] / 100
= (15 + 10) / 100
= 0.25
= 25%.

The HPR in the case of debt instruments is the same as above but with the prices being the *all-in prices*: HPR = $[(AIP_1 - AIP_0) + I] / AIP_0$.

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3.6.3 Annualised HPR

Individuals calculate the HPR of an investment for the period over which it was held; thus this measure of return is rarely an annual return. The annual return is captured in the *Annualised HPR*:

For example, if the HP in the example in the previous section was 2 years, the *Annualised HPR* is (n = number of years; less that a year = months / 12):

$$\begin{aligned} \text{Annualised HPR} &= (1 + \text{HPR})^{1/n} - 1 \\ &= (1 + 0.25)^{1/2} - 1 \\ &= 0.1180 \\ &= 11.80\%. \end{aligned}$$

Similarly, if the HP in the example above was 6 months, Annualised HPR is:

$$\begin{aligned} \text{Annualised HPR} &= (1 + \text{HPR})^{1/n} - 1 \\ &= (1 + 0.25)^{1/(6/12)} - 1 \\ &= (1 + 0.25)^{2} - 1 \\ &= 0.5625 \\ &= 56.25\%. \end{aligned}$$

3.6.4 Arithmetic mean return

Other measures used in the financial industry are the *arithmetic mean return* (AMR) and *geometric mean return* (GMR). These are used to measure *average returns* over a *number of years* (n), because in some years returns are negative while in other years returns are positive.

The *arithmetic mean return* (AMR) is (Σ = Greek sigma = sum of):

$$\text{AMR} = \Sigma\ \text{HPR} / n$$

An example (non-dividend-paying share) is presented in Table 2.

	Share price	Income	Share price	HPR	AMR
Start of year 1	LCC20.0				
End of year 1		LCC0.0	LCC25.0	0.25	
End of year 2		LCC0.0	LCC20.0	-0.20	0.025 or 2.5%

Table 2: Example of mean return

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$$\begin{aligned} \text{HPR (end of year 1)} &= [(P_1 - P_0) + I] / P_0 \\ &= [(25.0 - 20.0) + 0.0] / 20.0 \\ &= 5.0 / 20.0 \\ &= 0.25 \end{aligned}$$

$$\begin{aligned} \text{HPR (end of year 2)} &= [(P_1 - P_0) + I] / P_0 \\ &= [(20.0 - 25.0) + 0.0] / 25.0 \\ &= -5.0 / 25.0 \\ &= -0.20 \end{aligned}$$

$$\begin{aligned} \text{AMR} &= \Sigma \text{ HPR} / n \\ &= [0.25 + (-0.20)] / 2 \\ &= 0.025 \\ &= 2.5\%. \end{aligned}$$

The problem here will be apparent: even though the investor earned zero return over the period of two years, this calculation says that the investor earned an average annual return of 2.5%.

3.6.5 Geometric mean return

The correct method to determine the annual rate of return over a number of periods (such as years) is the geometric mean return (GMR). Using the same example, the GMR is:

$$\begin{aligned} \text{GMR} &= [\Pi(1 + \text{HPR})]^{1/n} - 1 \\ &= [(1.0 + 0.25) \times (1.0 - 0.20)]^{1/2} - 1 \\ &= (1.25 \times 0.8)^{0.5} - 1 \\ &= 0.0. \end{aligned}$$

This says that the GMR is the nth root of the product (Π) of 1 + HPR for n years. It will be clear that the GMR measure is accurate, while AMR is considered a "rough" indicator.

3.7 Other concepts of return

3.7.1 Introduction

In the previous section we outlined the main return measures that are applied in the financial markets. In this section we cover the return concepts that are found in financial literature and have practical and theoretical significance:

- Risk-free rate.
- Expected rate of return.
- Required rate of return.

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3.7.2 Risk-free rate

The risk-free rate (rfr) is a concept that has a centre-stage place in finance. It is a concept that some scholars have difficulty in defining (some have even said that it does not exist).

In our view the rfr is the rate on government securities (treasury bills – TBs – and government bonds) of the applicable term to maturity. For example, the applicable rfr in a 3-month option is the 3-month TB rate. If the intention is to hold shares for 5 years, then the relevant rfr (in the CAPM and the CGDDM[13]) is the 5-year government bond ytm, and so on…

The rfr is the lowest rate that can be earned for the relevant period with certainty. It is certain that the rfr rate will be earned because governments don't default[14] (because they have the authority to borrow and tax).

3.7.3 Expected rate of return

The expected rate of return (ER) applies to the future in the case of risky assets (particularly shares). An investment now in a 6-month treasury bill will provide a certain return, whereas an investment in a single share or a portfolio of shares will provide a return in the future that is unknown. It may be expressed as:

$$ER = [(P_1 - P_0) + I] / P_0$$

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where:

P_0 = purchase price of share
P_1 = expected selling price of share
I = income amount expected (dividend).

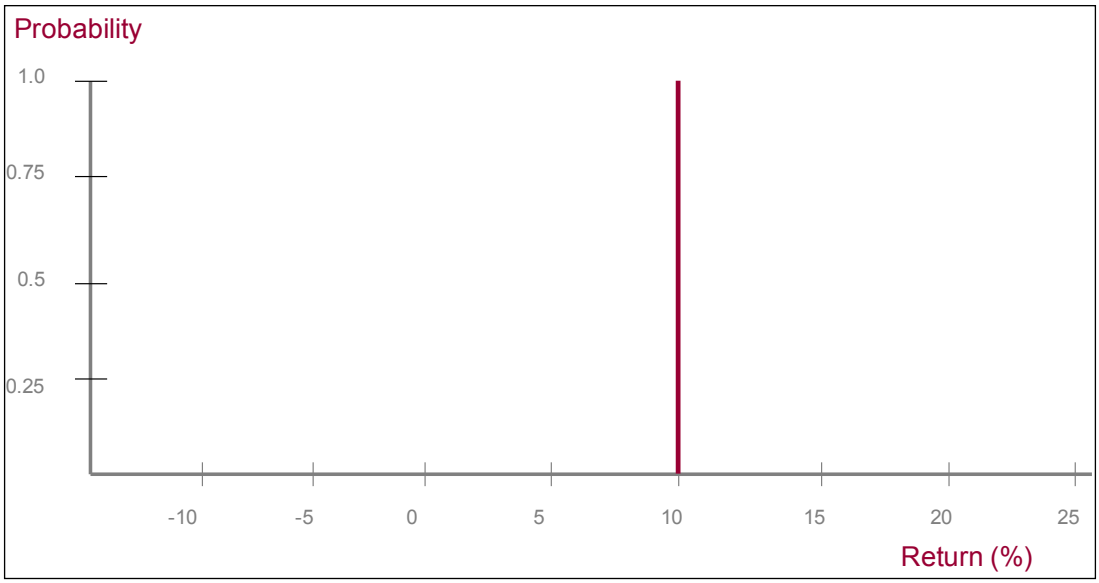

Figure 2: expected return and probability of return on a risk-free security

For example if the present price of the share is LCC10 and it is expected to be LCC12 in 6-months' time, and the expected dividend is LCC0.6, the ER is:

$$
\begin{aligned}
ER &= [(EP - P_0) + EI] / P_0 \\
&= [(LCC12 - LCC10) + LCC0.6] / LCC10 \\
&= LCC2.6 / LCC10 \\
&= 0.26 \\
&= 26\%.
\end{aligned}
$$

The concept *expected rate of return* introduces the *probability of return* because the return is not certain. Any person in the investment game *expects a particular return* from an investment but can *never be certain* about the return – except in the case of a risk-free asset. The latter case may be portrayed as in Figure 2. An investor buys a 3-month TB at a rate 10% pa and intends to hold it to maturity; the probability of receiving the return = 1.0.

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Market conditions	Probability	Rate of return
Boom economic conditions ahead; inflation rising	0.25	15%
Moderate economic conditions; little inflation	0.60	10%
Weak economic conditions; falling inflation	0.15	2%
Total	**1.00**	

Table 3: Example of expected returns and associated probabilities

With the purchase of a share, no such certainty exists. The investor intuitively assigns or consciously is obliged to assign *probabilities* to the possible outcomes of the investment in equities. S/he may decide that the expected returns and associated probabilities are as presented in Table 3 and portrayed in Figure 3.

The ER on this investment (call it investment A) is the product of the weighted (by the probabilities – P) returns (R):

$$\begin{aligned} ER_A &= P_1R_1 + P_2R_2 + P_3R_3 \\ &= (0.25 \times 15\%) + (0.60 \times 10\%) + (0.15 \times 2\%) \\ &= 3.75 + 6.0 + 0.30 \\ &= 10.05\%. \end{aligned}$$

Another (ridiculous) example is presented in Table 4 (investment B).

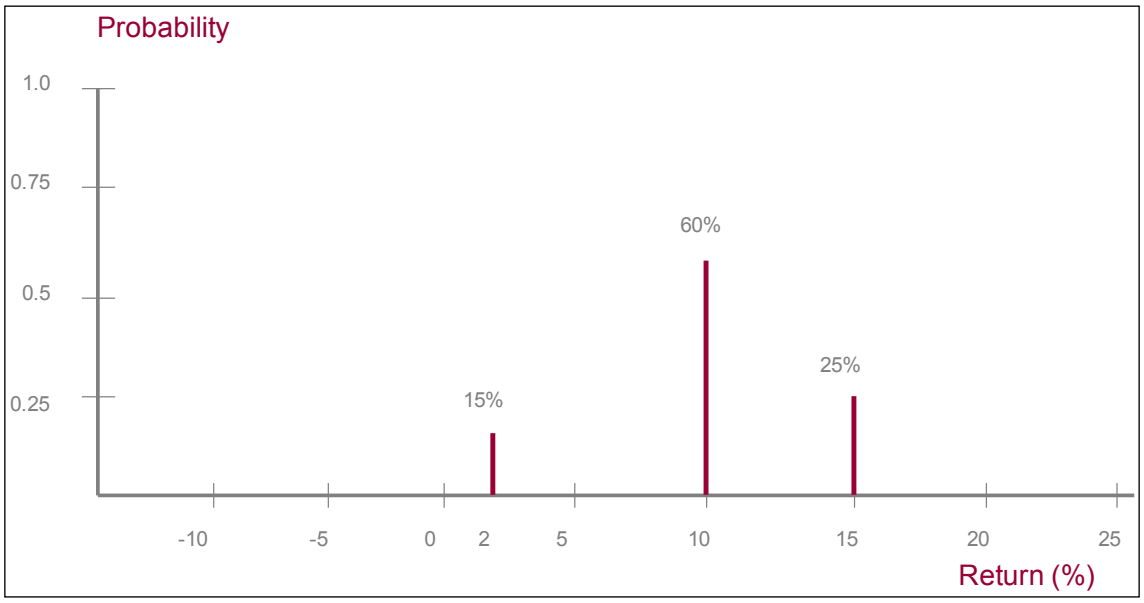

Figure 3: possible returns and probability distribution of returns on a risky security

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Outcome number	Probability (P)	Rate of return (R)	Product (P x R)
1	0.1	-75%	-7.5
2	0.1	-60%	-6.0
3	0.1	-30%	-3.0
4	0.1	-15%	-1.5
5	0.1	0%	0.0
6	0.1	25%	2.5
7	0.1	45%	4.5
8	0.1	60%	6.0
9	0.1	70%	7.0
10	0.1	80%	8.0
Total	**1.0**		10.0 = ER

Table 4: Example of expected returns and associated probabilities

In this example the ER is the same as the ER in the case of investment A, i.e. 10%. However, it will be apparent that investment B is substantially more risky than in the case of investment A because the *outcome is highly uncertain*.

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If the investor has a choice between the risk-free asset, investment A and investment B, s/he will no doubt choose the risk-free asset. Second choice is investment A, and last is investment B. This is because investors are *risk averse*, meaning that they will choose assets that offer greater certainty of return, or least uncertainty of return. To these concepts we shall return.

3.7.3 Required rate of return

The required rate of return (rrr) is a return concept that has pride of place in the CAPM, developed by Nobel Economics Laureate Prof William Sharpe. The essence of the model is that buyers of equity *require a particular rate of return* that is above the risk-free rate (rfr) and compensates them for the risk inherent in equity investments. Thus the rrr is made up of two elements: the rfr and a premium for risk.

What is the size of the premium? Is it a gut-feel approximation or is it based on something that can be measured? The answer is that, generally, the thinking investor would most like to base it on something, and that something is what happened to the particular market of which the share is a part (obviously the share market).

The accepted measure is the *volatility of return relative to the market* of which the share is a part. This "risk" is measured by the so-called *beta coefficient*. It measures the tendency of a share's return to fluctuate relative to fluctuations in the market (in practice a market index). We will return to this issue a little later.

3.8 Risks faced in holding financial assets

What is risk in financial terms? It is the degree of uncertainty that the realised return on an investment will not equal the expected return. It may also be expressed as the degree of volatility or variability in returns.

Past volatility is easy to measure. Future volatility is not and this is where the probability of return enters the picture.

Above we identified two sources of investment return: income and price change. To this we now add a third: reinvestment of income, which plays a substantial role in the final investment outcome. Thus we have three sources of investment return in the case of the financial markets:

- Income (dividends in the case of equity).
- Change in price (capital gain or loss).
- Reinvestment of income.

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Investment risk thus arises from the *variability of return* in these sources. For example:

- Companies may perform badly from year to year and some may even go out of business. These events will affect the prices of the relevant shares.
- Earnings may change from year to year.
- Dividends may change from year to year.
- Interest rates may be volatile at times, which affects reinvestment income.

In investment literature risk is classified into two "types": systematic risk and unsystematic risk. *Systematic risk* is defined as risks that are inherent in the financial and/or economic *system* (hence the name). Little can be done about this risk-type. Examples of this type of risk are:

- Tax changes.
- Upward changes in the central bank accommodation rate.
- Sudden change in the economic growth rate.
- Declaration of a war.
- A major change in the exchange rate.

Unsystematic risk is *security-specific* risk. This risk-type arises from the activities of the issuers of shares, i.e. the companies, and the industry of which they are a part, and may be seen as the *major factors* that affect the *income flows* of companies. Analysts generally categorise this risk-type into *business risk* and *financial risk*.

Business risk is the uncertainty of income produced by the company itself and/or the industry the company is a part of. Examples of business risk:

- Prolonged labour strike.
- Arrival of serious competition from offshore.
- Harmful management decisions.
- Negative change in product / service quality.

All these factors have an effect *on sales variability*, and this is one of the main determinants of income / earnings variability.

Financial risk is introduced when debt is utilised as a source of capital, and is used injudiciously by the company. Examples are borrowing at a time when rates are high and are about to fall, borrowing in excess of funding requirements and misuse of the funds so that the funds do not contribute to the income of the company.

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Some analysts include *liquidity risk* as a third type of *unsystematic risk*. This is the risk of the segment of the share market in which the relevant share is being illiquid so that fair market value cannot be obtained.

Risk may be portrayed as in the Figure 4. Market (systematic) risk is out of the sphere of influence of the investor and the companies and this type of risk cannot be "diversified away". However, unsystematic risk can be "diversified away", by which is meant that risk is reduced by increasing the number of shares in the portfolio. Although this subject is the domain of portfolio theory, it is touched upon in the following section.

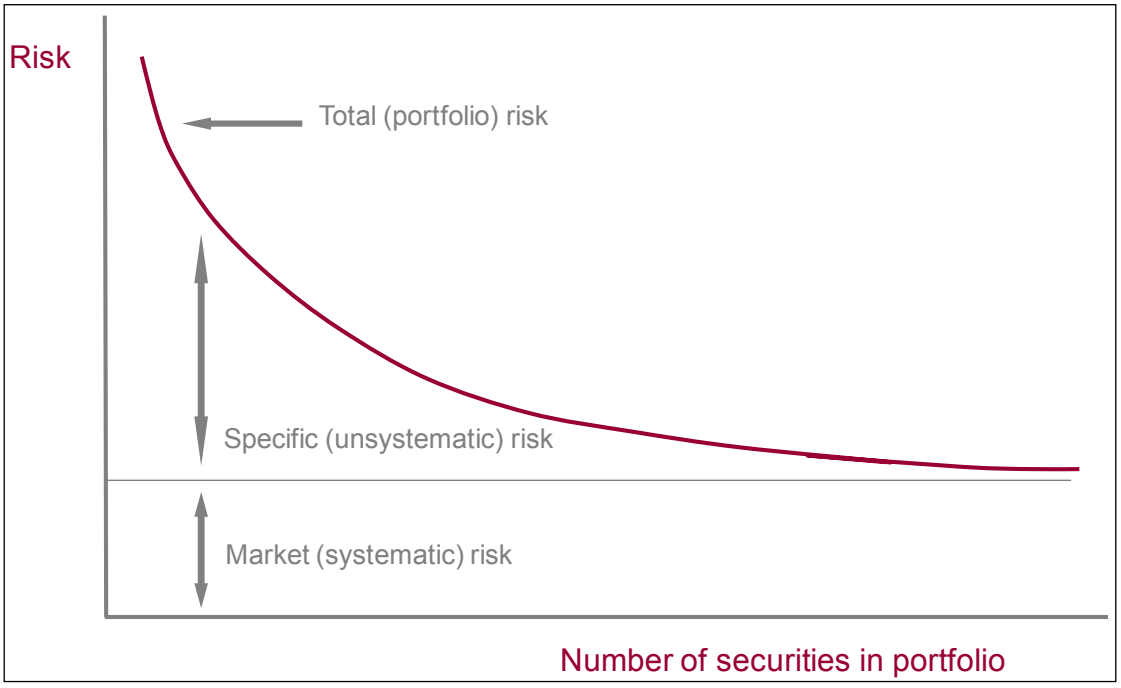

Figure 4: risk

3.9 Risk predisposition

Investors have one of three basic predispositions or preferences for risk: risk-seeking, risk-indifferent and risk-averse (see Figure 5). The *risk-indifferent investor* is not a wise one because s/he is willing to accept more risk without expecting / requiring a higher rate of return.

The *risk-seeking investor* has a brain problem because s/he is willing to accept more risk for a decline in return (in fact the risk-seeker will not be an "investor" for long, but a deficit economic unit). The *risk-averse investor* is the normal investor, i.e. s/he has a healthy attitude toward risk, and will only accept more risk if there is a chance of a higher return. This means that s/he requires or expects a higher return for a greater level of risk.

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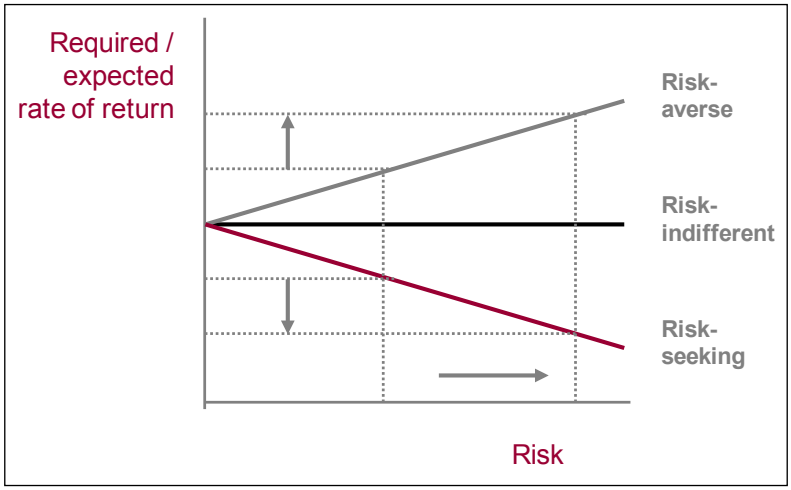

Figure 5: risk profile

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3.10 Measurement of risk in the financial markets[15]

3.10.1 Introduction

Risk is defined as uncertainty in respect of whether the realised return will equal expected return. Risk is seen as either:

- The extent to which return varies from the average return, i.e. *variability of return*. This is measured by the *standard deviation* of expected rates of return. This measure measures total risk.
- The *volatility of return relative to the market* of which the security is a part. This risk is measured by the so-called *beta coefficient*. It measures systematic risk (the area below the horizontal line in Figure 4).

Both *historical data* and *expected rates of return* may be used in the computation of risk. The former employs existing "hard" data and the latter employs expected rates of return (ER) and their associated probabilities (P).

Thus we have two measures of risk: *standard deviation* and *beta*. It must be added that some analysts also regard *variance* as a measure of risk; it is, but it is a blood relative of standard deviation (it is the square of the standard deviation as we shall see).

3.10.2 Standard deviation (one asset)

We start with four possible outcomes of an investment (share A) and associated probabilities of outcome (see Table 5).

We showed earlier that the *expected rate of return* on share A (ER_A) is computed as follows:

$$ER_A = P_1R_1 + P_2R_2 + P_3R_3 + \ldots$$

Using the numbers in Table 5:

$$\begin{aligned} ER_A &= (0.15 \times 25\%) + (0.40 \times 15\%) + (0.25 \times 0\%) + (0.20 \times -5\%) \\ &= 3.75\% + 6.0\% + 0\% + -1\% \\ &= 8.75\%. \end{aligned}$$

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Outcome: Number	Expected rate of return (R) (share A)	Probability (P)
1	25%	0.15
2	15%	0.40
3	0%	0.25
4	-5%	0.20
		1.00

Table 5: Expected rates of return and their associated probabilities (on one share)

We are now able to compute the *variance of expected rate of return* (σ^2), and the *standard deviation*, which if the square root of the σ^2, i.e. σ. The variance is the weighted sum of squared deviations from the expected return. The reason the deviations are squared is that positive and negative deviations from the ER contribute in the same way to the measure of variability.

We can now calculate the σ^2 on share A:

$$\begin{aligned}
\sigma^2_A &= [P_1 \times (R_1 - ER_A)^2] + [P_2 \times (R_2 - ER_A)^2\} + \\
&\qquad [P_3 \times (R_3 - ER_A)^2] + [P_4 \times (R_4 - ER_A)^2] \\
&= [0.15 \times (25.0 - 8.75)^2] + [0.40 \times (15.0 - 8.75)^2] + \\
&\qquad [0.25 \times (0.0 - 8.75)^2] + [0.20 \times (-5.0 - 8.75)^2] \\
&= (0.15 \times 264.06) + (0.4 \times 39.06) + (0.25 \times 76.56) + (0.2 \times 189.06) \\
&= 39.61 + 15.62 + 19.14 + 37.81 \\
&= 112.18\%.
\end{aligned}$$

The σ, as noted above, is the square root of the σ^2, and it is equal to 10.59%. Again, this is a measure of the *dispersion around the mean* (i.e. the average return). The higher the standard deviation, the higher the risk is.

It may be useful to provide an example of computation of the variance in the case of the use of *historical data* (see Table 6).

$$\begin{aligned}
\sigma^2_A &= \Sigma\, (R_t - R_A)^2 / n - 1 \\
&= [(25.0 - 8.75)^2 + (15.0 - 8.75)^2 + (0.0 - 8.75)^2 + (-5.0 - 8.75)^2] / 3 \\
&= (264.06 + 39.06 + 76.56 + 189.06) / 3 \\
&= 568.74 / 3 \\
&= 189.58
\end{aligned}$$

$$\sigma_A = 13.76\%.$$

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Year	Annual return (share A)
1999	25%
2000	15%
2001	0%
2002	-5%
Mean	**8.75%**

Table 6: Annual return on share A

3.10.3 Standard deviation (a portfolio of shares)

The standard deviation of a portfolio may also be computed by including more than one asset. A portfolio has an average return and dispersion around the average return.

The standard deviation of a portfolio is the square root of the sum of (in the case of a two share portfolio):

- The squared standard deviation of the return of the first asset times its squared weight in the portfolio, plus
- The squared standard deviation of the return of the second asset times its squared weight in the portfolio, plus
- Two times the weight of the first asset times the weight of the second asset times the covariance of the two assets.[16]

This will not be discussed further here; it is the matter of *portfolio theory*.

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3.10.4 Beta

As seen above, the second risk measure is the *volatility of return relative to the market* of which the security is a part. This risk is measured by the so-called *beta coefficient*. It measures the tendency of a share's return to fluctuate relative to fluctuations in the market (in practice a market index).

If a share has a beta of 2, this means that the share has a tendency to rise / fall twice as much as the market over the chosen period of time, i.e. when the chosen index rises by z percent over a period, the share has a tendency to rise by 2 × z percent.

The beta is an important input in the *required rate of return* (rrr), which is the "rate" mostly used in the valuation of equity (the CGDDM).

Essentially, the rrr has to be determined in some way to take account of the risk inherent in equity, i.e. there must be a risk premium for equity. Much research has been done on determining the correct rrr, and the one most followed is the *Capital Asset Pricing Model* (CAPM) estimate.

According to the CAPM the rrr is equal to the risk-free rate of interest plus a multiple of the market risk premium as represented by the share's beta coefficient:

$$rrr = rfr + (\beta \times (mr - rfr))$$

where

rfr	= risk-free rate
β	= beta
mr	= market rate of return, i.e. the return observed over the period chosen
mr – rfr	= the premium over the risk-free rate.

3.11 Relationship between risk and return

In penultimate conclusion we touch upon the relationship between risk and return. Figure 6 shows this relationship, and it is evident that the relationship is positive, i.e. the return required increases as risk increases. This is so because investors are *risk averse*.

The relationship is represented by what is termed the *capital market line* (CML which is used extensively in portfolio literature). If investors were risk seeking, the CML would be negatively sloped.

The slope of the CML depicts the extent of additional return expected / required for additional each unit of risk assumed.

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There is ample empirical evidence to support the slope of this line: money market at bottom left, bonds in the middle and equities top right. This is covered next.

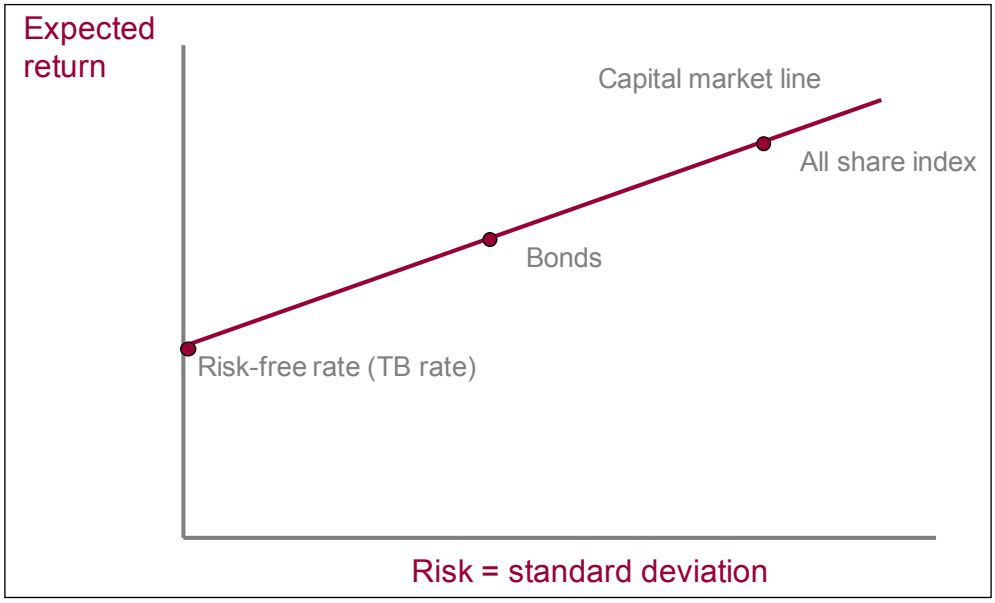

Figure 6: relationship between risk & return

3.12 Risk and return: the record

Fortunately, data is available on the risk and return relationship of the three main asset classes:

- Equities
- Bonds
- Cash (i.e. money market).

Figure 7 shows the average annual returns and the standard deviations of the asset classes for a period of 108 years (1900–2007). The evidence is indisputable: higher returns are accompanied by higher risk (= dispersion around the mean return). This fits in well with Figure 6.

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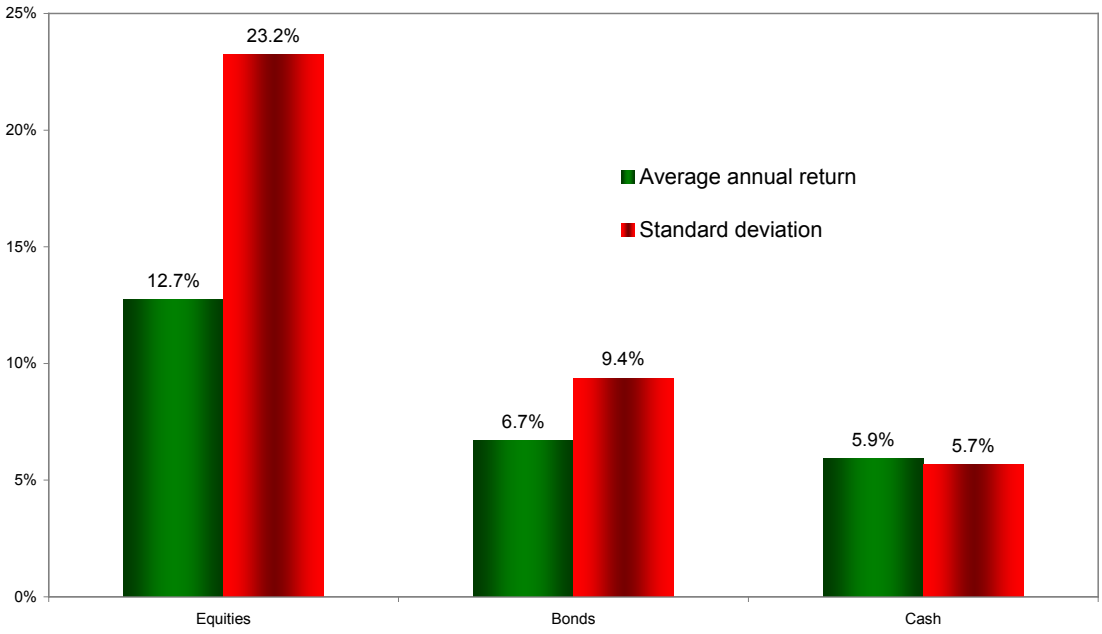

Figure 7: RSA: average annual returns & STD (108 years)

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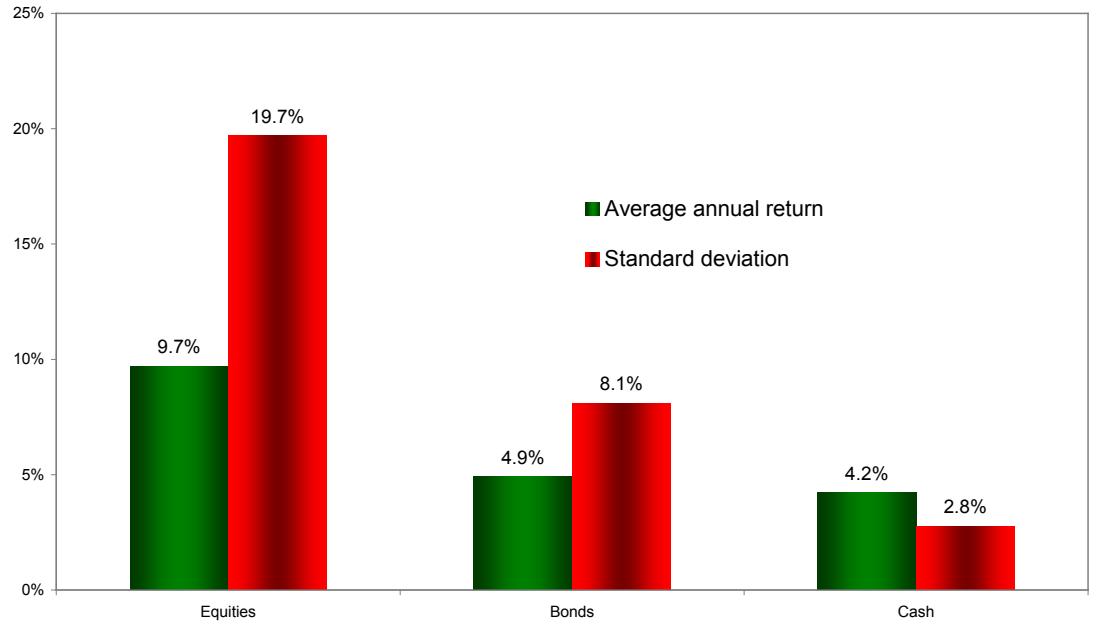

Figure 8: USA: average annual returns & STD (108 years)

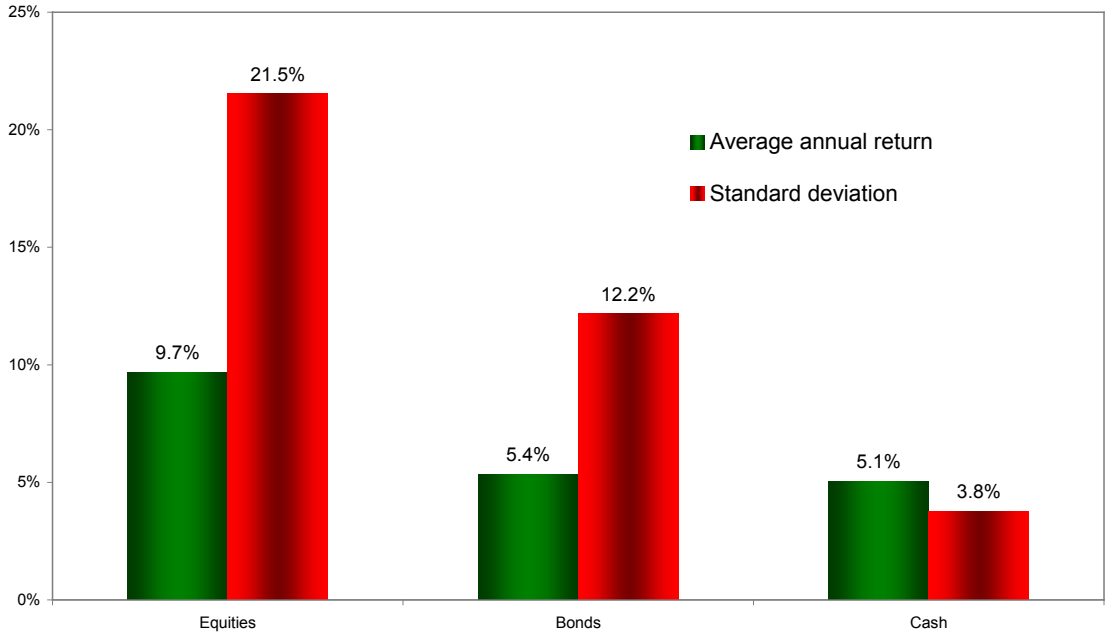

Figure 9: UK: average annual returns & STD (108 years)

Similar numbers are recorded for the USA and the UK (see Figure 8 and Figure 9).

It will be understood that when the averaged numbers are disaggregated into higher frequency numbers the variability of returns (risk) is revealed. Figure 10 shows the annual average returns for bonds and Figure 11 shows the same for cash. Note that the scales are the same.

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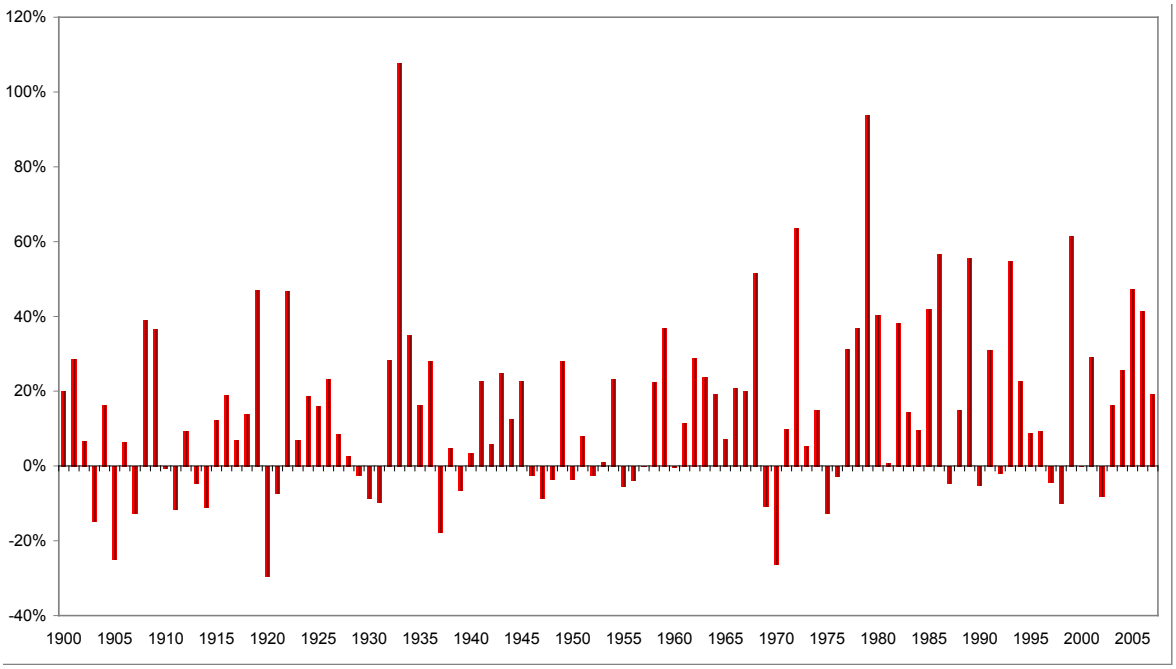

Figure 10: SA: equities: annual returns (1900–2007)

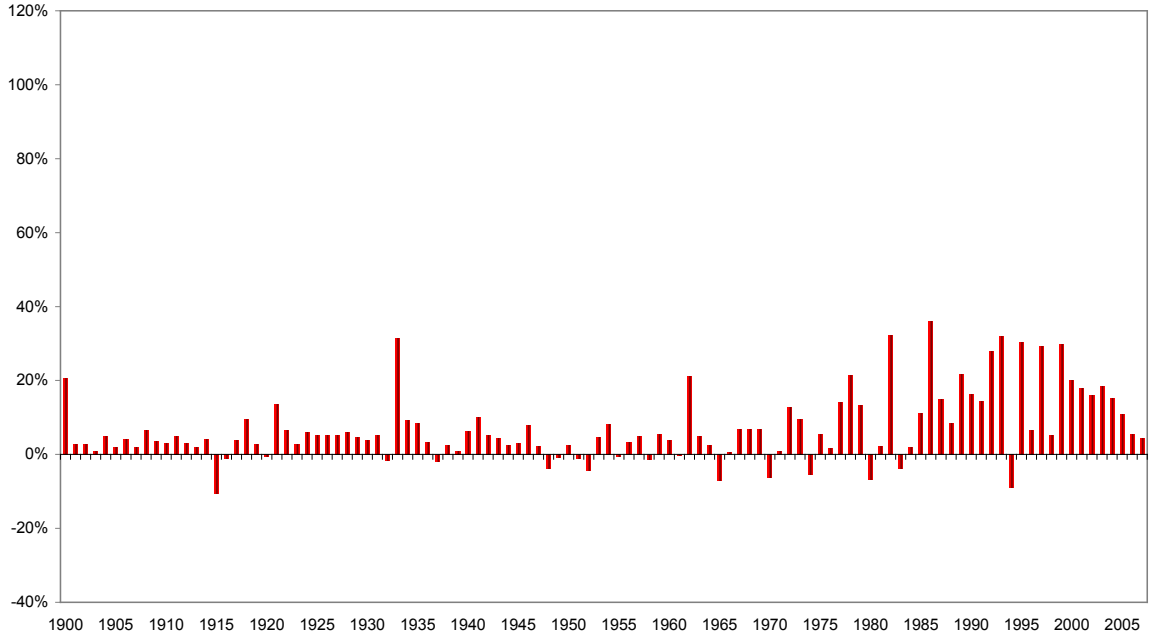

Figure 11: SA: bonds: annual returns (1900–2007)

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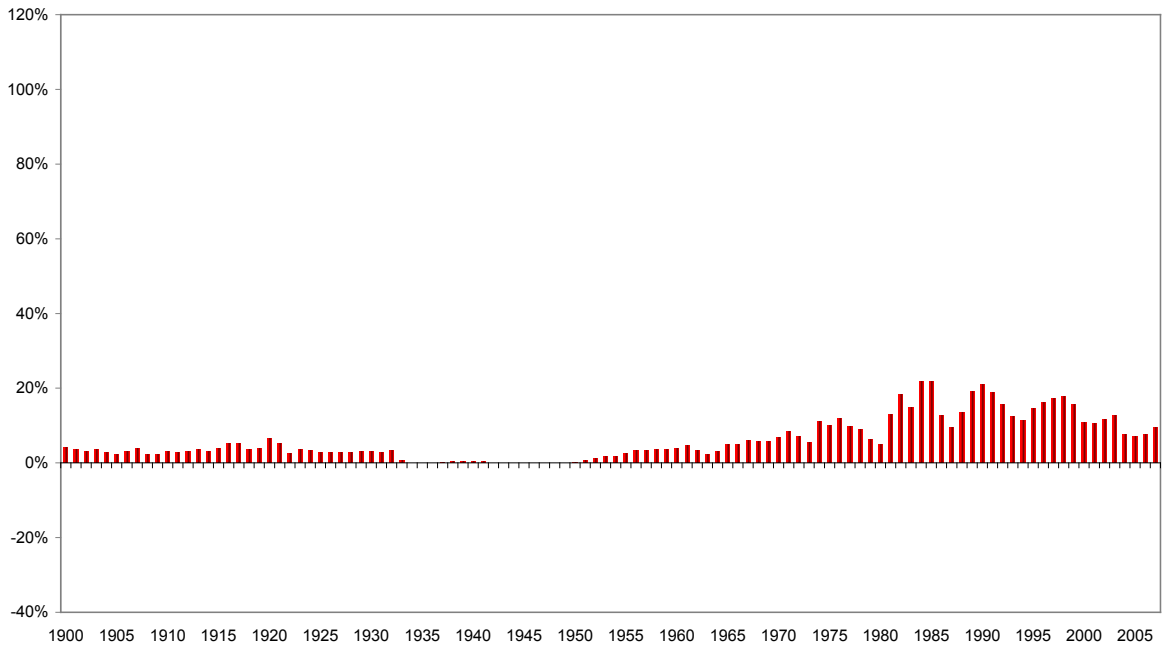

Figure 12: SA: cash: annual returns (1900–2007)

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3.11 Summary

Equity is held by all the ultimate lenders and certain of the financial intermediaries (particularly the retirement funds, insurers and the CISs). There are risks in holding equity and this is measured by the standard deviation of expected returns and beta. Investors are risk averse and express this by demanding more return for more risk, as reflected in the securities market line. The risk and return relationship is borne out in the risk-return records over many decades.

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4 Primary market

4.1 Learning outcomes

After studying this text the learner should / should be able to:

- Understand the organisational structure of the equity market.
- Explain the differences between the primary and secondary equity market.
- Evaluate the economic function of the primary market.
- Comprehend the motivation and advantages or the listing of share capital.
- Explain the disadvantages of being listed.
- Know of the existence of listing requirements.
- Identify the types of companies that list.
- Describe the listed products other than shares.
- Explain the methods of listing.
- Provide an exposition of the steps involved in a listing.
- Comprehend the contents of the prospectus.
- Evaluate the arguments for and against underwriting a share issue.
- Describe the other sources of primary market issue of listed equity.
- Appreciate the role played by the exchange in terms of capital raised.

4.2 Introduction

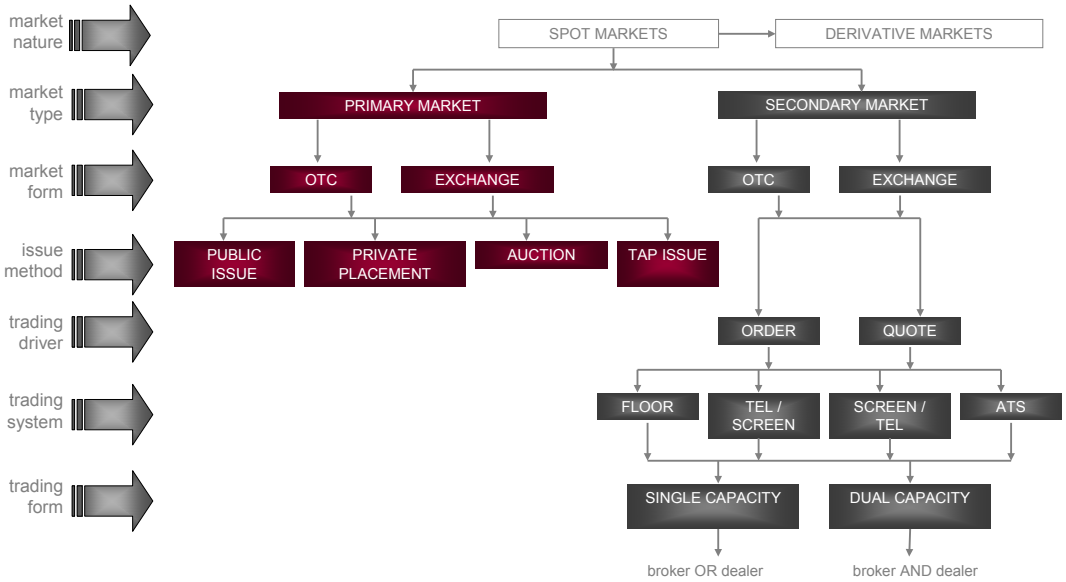

Figure 1: Organisational structure of spot financial markets

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Figure 1 serves as an introduction to this section. All financial markets have primary markets, but not all have secondary markets. For example, there is a primary market for savings deposits, but the holders are not able to sell these financial instruments. Marketable securities have secondary markets.

Listed equities are marketable and the equity market therefore has a *primary market* and a *secondary market*. The primary equity market is the market for the issue of newly created equities, and the secondary market the market for the trading of existing securities. Thus, in the case of primary market issues the issuing companies are funded to the extent of the number of shares issued times the price of the shares (see Figure 2).

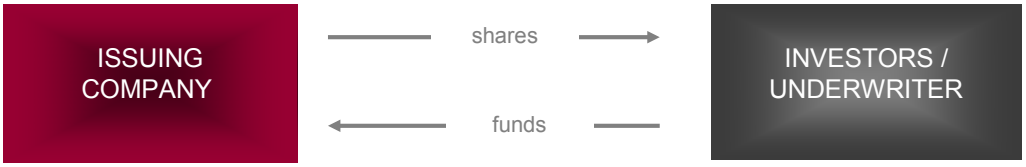

Figure 2: exchange of value in primary equity market

In the secondary market the companies whose shares are being traded are not additionally funded. The seller of the (existing) shares (an investor) is merely paid for the shares by the buyer (an investor), via a broker, and the consideration paid is the number of shares times the price negotiated for the shares (see Figure 3).

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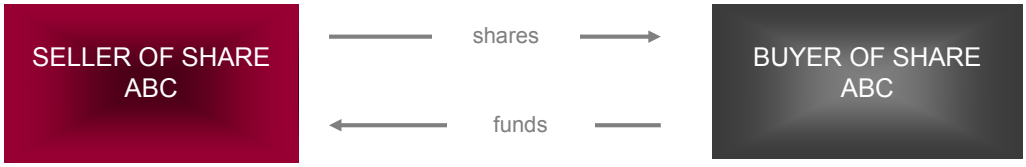

Figure 3: exchange of value in secondary equity market

The primary market for *unlisted shares* is straightforward. In the case of a new company, the owners would simply have the shares created by an accountant/lawyer and the funds (par value of shares) placed in a bank account opened for the company. If the unlisted company requires additional funding, it will approach investors, armed with a prospectus, and if successful, place the shares with them, and place the funds raised in the bank account.

However, in the case of a *listed* company, the primary market is not uncomplicated. In the pages that follow, the primary market is covered in some detail under the following sections:

- Economic function of primary market.
- Motivation for listing (advantages).
- Disadvantages of being listed.
- Listing requirements.
- Types of companies that list.
- Listed products other than shares.
- Methods of listing.
- Steps involved in a listing.
- The prospectus.
- Underwriting a share issue.
- Other sources of primary market issue of listed equity.
- Capital raising.

4.3 Economic function of primary market

The economic benefit / function of the primary equity market is to channel surplus funds into productive investment at a price that is commensurate with the risk assumed by the buyer of the equity. The issue price paid is a function not only of the perceived risk and expected return, but also of the fact that a secondary market exists for the trading of the equities, i.e. a means of exit from the investment exists. For this reason, the primary and secondary markets are inextricably linked.

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It will be apparent that most companies have their shares listed on an exchange with the intention of utilising the acquired (permanent) capital for long-term investment (additions to a production facility and/or equipment) that will yield a respectable return for the company and therefore for its shareholders. However, this capital will not be readily available if no secondary market for equities exists.

The secondary market not only provides an exit mechanism for the investment (many investors invest only for the short term), but also provides real clues as to the correct pricing. The large investors in the equity market are the professional investors (called the "institutions"), and smaller investors take comfort from the fact that the market is usually priced correctly, and that the professionals have brought this about.

4.4 The law, the equity exchange and listing

When marketable equity is issued it is listed on the financial exchange of the country (there may be more than one exchange). What does this mean? All[17] countries have equity exchanges and all exchanges are licensed under a statute. The statute usually defines an exchange and its functions and has many provisions regarding the listing of equities.

In South Africa, for example, the Securities Services Act (SSA) **defines an exchange** as (section 1):

> **"…**means a person who constitutes, maintains and provides an infrastructure –
> a) for bringing together buyers and sellers of securities;
> b) for matching the orders for securities of multiple buyers and sellers; and
> c) whereby a matched order for securities constitutes a transaction…"

In respect of the **general functions of an exchange** the SSA (section 11) determines:

Section 11 determines:

> "…(1) An exchange –
> a) must enforce the exchange rules and listing requirements;
> b) must supervise compliance by authorised users with this Act and the exchange rules;
> c) may issue directives;
> d) may amend or suspend the exchange rules in terms of section 61, and may amend its listing requirements in consultation with the registrar;
> e) (i) must make provision for the clearing and settlement of transactions in listed securities effected through the exchange;
> (ii) may appoint a clearing house licensed in terms of section 66 to perform clearing house services for the exchange in accordance with the exchange rules;
> (iii) must consult with an appointed clearing house when making or amending exchange rules pertaining to clearing and settlement;
> f) must supervise compliance by issuers of listed securities with the listing requirements, the exchange rules and this Act…"

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In respect of **listing requirements** the SSA (section 12) determines:

"…(1) An exchange must…make listing requirements which prescribe –

a) the manner in which securities may be listed or removed from the list or in which the trading in listed securities may be suspended;

b) the requirements with which issuers of listed securities and of securities which are intended to be listed, as well as such issuers' agents, must comply;

c) the standards of conduct that issuers of listed securities and their directors, officers and agents must meet;

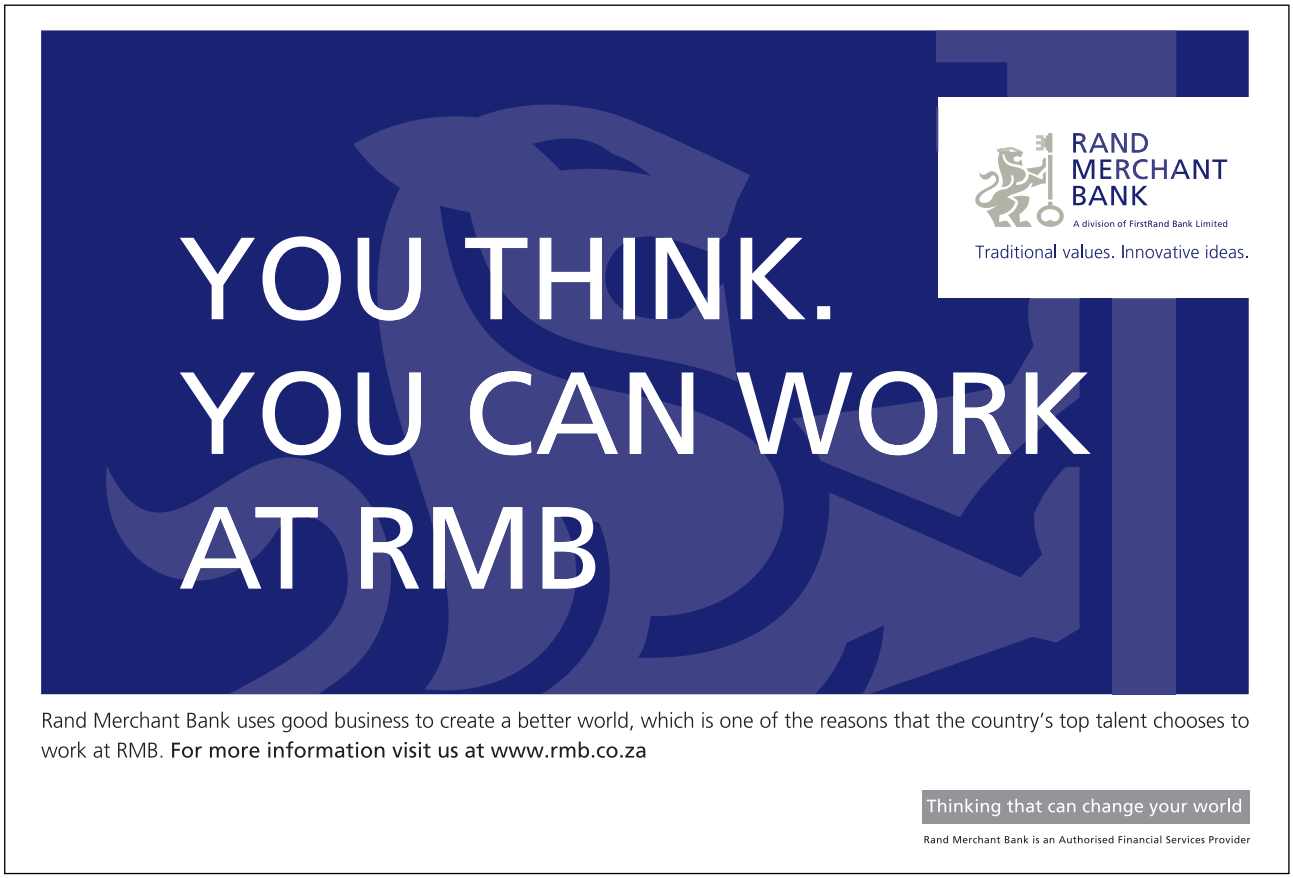
d) the standards of disclosure and corporate governance that issuers of listed securities must meet…

(6) An exchange –

a) must keep a list of the securities which may be traded on the exchange;

b) must receive and consider, and may grant, defer or refuse, subject to its listing requirements and any other conditions that it may determine, applications for the inclusion of securities in the list;

c) may include securities issued by it in its own list subject to the approval of and the conditions prescribed by the registrar…"



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The SSA also determines that the exchange will be managed by the Rules and Directives of the exchange which must be approved by the Registrar (the licensing body).

The details of the listing requirements are contained in a separate *Listings Requirements* document. Box 1 presents the sections of this document which provides a hint of the requirements.

The share listing requirements are onerous, because the listing and trading of listed shares *is* the business of exchange. South Africa is also moving towards international best practice in this regard, leading to greater disclosure, in an effort to perfect local and foreign investor confidence in the equity market.

Introduction
Definitions
Authority of the committee
Sponsors
Continuing obligations
Conditions for listing
Methods and procedures of bringing securities to listing
Pre-listing statements
Listing particulars
Financial information
Transactions
Transactions with related parties
Circulars and announcements
Mineral companies
Property companies
Special types of issuer
Investment entities
Documents to be submitted to the committee
Listing and other fees
Dual listings and listings by overseas companies
STRATE
Transitional requirements
Schedules

Box 1: Sections covered in JSE (Equities Division) listings requirements document

We will return to the listing requirements later.

4.5 Motivation for listing (advantages)

4.5.1 Introduction

There are many reasons / advantages for listing on an exchange:

- Enhanced ability to raise capital.
- Acquisition of capital at the best possible price.
- Incentive for employees.
- Incentive for owners.
- Credibility and reliability of the company.
- Source of information.

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4.5.2 Enhanced ability to raise capital

It is easier to raise capital if a company's shares are listed. This is because substantially more investors will be aware of the primary issue, and this is because a primary issue to be listed is advertised widely in the press and by the members of the exchange, particularly by the sponsoring broker.

Investors generally prefer to hold listed shares because they have an exit mechanism, i.e. they have the benefit of being able to dispose of the shares if they so desire.

The company is also better able to raise other forms of finance such as bank loans, and funds from the issue of bonds. This is because creditors are better disposed toward a listed company, and this springs from the knowledge that listed companies are subjected to the scrutiny of the public and the exchange.

A credible listed company is also able to raise additional equity finance for acquisitions and takeovers. This may be substantially cheaper than alternative forms of finance.

4.5.3 Acquisition of capital at the best possible price

Apart from the improved access to capital, a company that lists its shares on an exchange is able to raise capital at a reduced price. There is a premium for marketability. This is because the *investment horizon of the investor is rendered flexible* by listed shares. In the case of unlisted shares the investors in effect make an investment for an indefinite period (remember shares are similar to perpetual bonds, but with uncertain returns). However, in the case of listed shares the investor may hold on to them for as long as s/he desires.

Investors also have the comfort of knowing that there are many professional analysts that will be monitoring the share to be listed, which does not apply in the case of unlisted shares. Also, investors in a new issue will generally regard the initial pricing to be fair because it is known that the professional investors will most likely also be taking up the shares.

4.5.4 Incentive for employees

Many companies offer their employees benefits in the form of a parcel of shares in the company either directly or via a share incentive scheme. If the shares are listed or if a listing is planned, the company will attract a better quality of managing director, executive directors and other management. With high quality management, the company will perform better than otherwise.

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4.5.5 Incentive for owners

The original owners of a company have two main incentives to list:

- Provides an opportunity to cash in a portion of their investment in their company and diversify their portfolios.
- In the case of older owners (when experiencing more frequent senior or senile moments) to retire and to replace themselves with competent management.

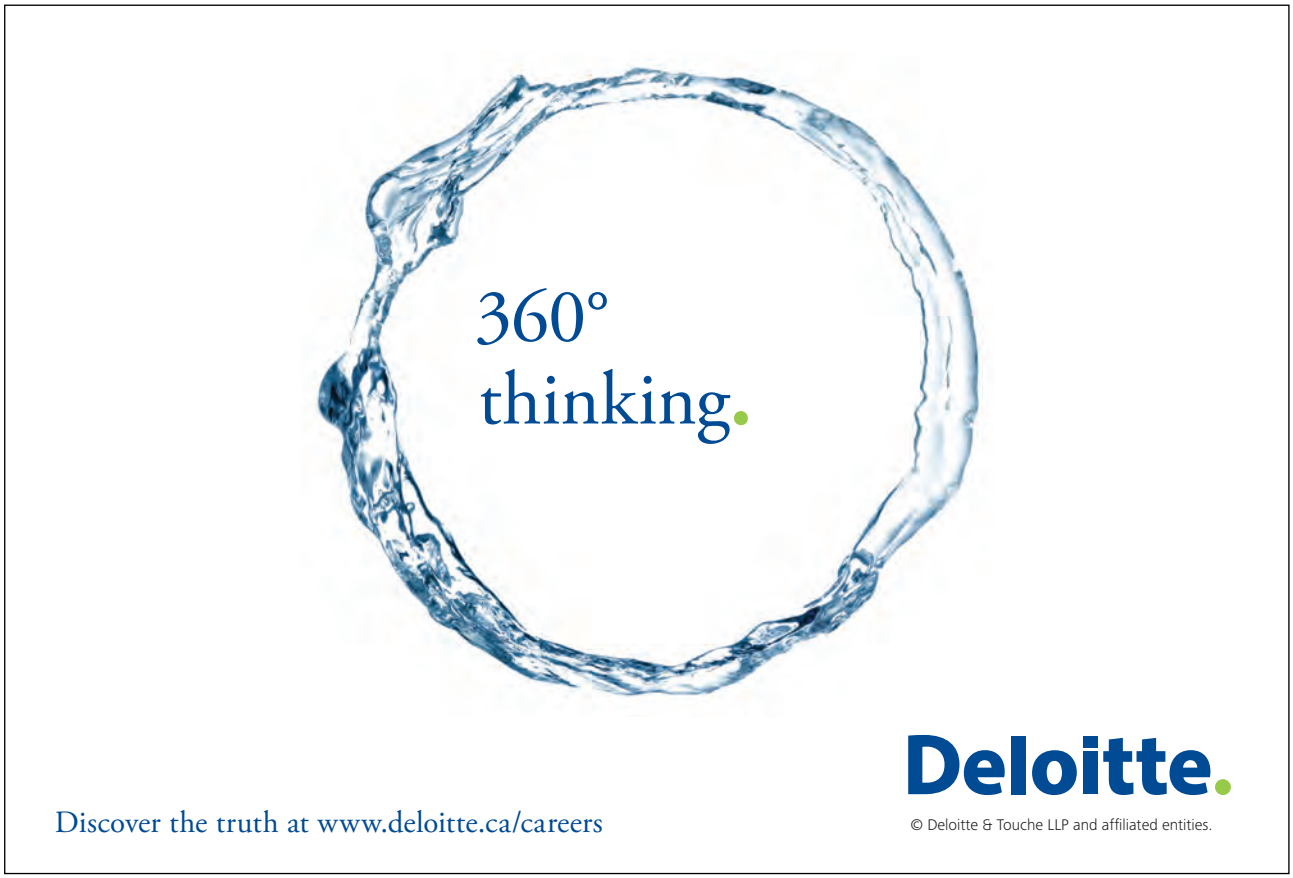
4.5.6 Credibility and reliability of the company

A listed company is seen to be more credible than a non-listed company in the same line of business. This improves the prospects for business. Also, the public draws comfort from the fact that analysts and the exchange carefully monitor the listed company.

4.5.7 Source of information

As noted above, analysts and the public in general are trading in the company's shares on a daily basis, reflecting thus their collective judgement of the share (risk free rate plus premium for risk). This is a valuable source of information in respect of:

- The public's impression of the company.
- The receptiveness of the market for further issues, i.e. the timing of further issues of shares when required.



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4.6 Disadvantages of being listed

4.6.1 Introduction

Associated with being listed are certain drawbacks, responsibilities and costs:

- Price of issue is made at a discount to perceived market value.
- Monetary cost.
- Disclosure of strategic information to competition.
- Pressure by public shareholders.
- Costs after listing.

4.6.2 Price of issue is made at a discount to perceived market value

A listing usually takes place at a price that is a discount to the "normal" price at which the company's shares should trade. Companies price their listing with reference to listed companies that they regard as their peers, and the discount could be 10–20% below what should be the market price, in order to ensure that the listing is successful.

4.6.3 Monetary cost

The monetary cost incurred by the company in listing is substantial. The firms involved in a listing are broker/s, attorney/s, banker/s accountant/s and sponsor/s. The time expended by the management of the company itself, including the "road show" to introduce the company to the institutions, is also usually of substantial (indirect) monetary cost.

4.6.4 Disclosure of strategic information to competition

Because listing requirements on most exchanges are strict in terms of disclosure, much information about the company is made public. This is a positive factor, but the information is also available to competitors.

4.6.5 Pressure by public shareholders

A listed company desires to be seen to be responsible in respect of, for example, social issues. This may not always be in the interests of the company (and its shareholders). Certain fanatical shareholders at Annual General Meetings may pressurise a listed company on this and various other issues.

Another piece of information that is made available to the public is the remuneration of directors, which is particularly pertinent under Corporate Governance requirements. Shareholders may object to remuneration that is considered by them to be too generous, which may prevent the appointment of the best man for the job.

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4.6.6 Costs after listing

There are numerous additional costs after a listing has taken place, including the costs of annual and interim reports, public notices such as cautionary announcements, and time spent with broker-dealer analysts.

In addition, the company is required to comply with the listings requirements of the exchange, which impose harsh requirements on the company beyond those required by the statute relating to companies. More management time is required to comply with the exchange requirements.

If listed companies breach the listings requirements, they can be sanctioned by the exchange. If this knowledge becomes public it could have a negative effect on the share price. (This of course can be seen as a positive factor rather than a negative factor.)

4.7 Listing requirements[18]

4.7.1 Introduction

The listing requirements differ from exchange to exchange, and from "board" to board" within exchanges, and they are usually onerous. One of the major requirements is the financial requirements that companies are obliged to disclose in the prospectus, which they are required to issue (see below). Before discussing this and other issues related to listing, we need to take a look at the segmentation of an exchange.

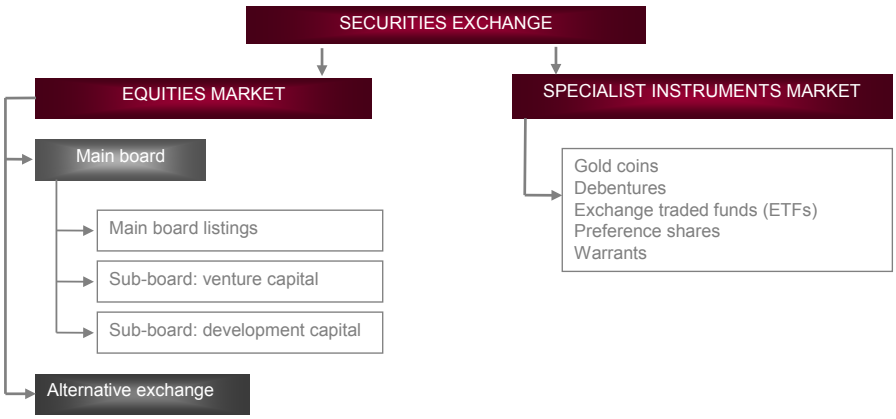

Figure 4: segmentation of an exchange

Many equity exchanges have an Equities Market and a Specialist Instruments Market. The latter will include instruments such as gold coins, warrants, ETFs, preference shares and so on (as indicated in Figure 4).

The Equities Market will usually have a Main Board (for the large companies) and an Alternatives Exchange (for smaller companies). Examples of the latter are AIM in the UK and Alt-X in South Africa. There could also be sub-boards such as a Venture Capital Board and a Development Capital Board.

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The term "board" originates from the use in the past (and still used in some countries) of a physical board upon which prices were recorded as member brokers made offers and bids. The listing requirements of the *Main Board*, the two *Sub-boards*, and the *Alternative Exchange* are discussed briefly below.[19]

4.7.2 Main board

The requirements in summary for a *Main Board* listing are as follows:

- A subscribed capital (including reserves but excluding minority interests, and revaluations of assets and intangible assets that are not supported by a valuation by an independent professional expert acceptable to the Committee prepared within the last six months) of at least R25 million.
- The company must have a satisfactory profit record for at least the preceding three years, the last of which must be an audited profit before taxation of at least R8 million.
- The public must hold a minimum of 20% of each class of share. Obviously this means that in the offer at least 20% of shares must be offered to the public.
- The number of the public shareholders (excluding employees and their associates) of listed securities must be at least: 500 for equity shares, 50 for preference shares and 25 for debentures.
- The minimum initial issue price of shares is required to be not less than 100 cents per share. This of course means that there will not be less than 25 million shares in issue.
- Companies are obliged to disclose much detail in their prospectus and financial statements.

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- The listed company must appoint a sponsor on a permanent basis. The sponsor must be independent of the company, and ensure that the listing requirements are adhered to at all times. Any information on the company of relevance to the public and the JSE (trading statements, financial information, press announcements) must be disseminated through the sponsor.
- All annual, interim provisional reports must be audited, and comply with GAAP (Generally Accepted Accounting Practice) or IFRS (International Financial Reporting Standards).
- Abridged annual financial statements are released on SENS (see below) on the day the statements are released.
- Disclosure of directors' emoluments in all forms (share options, fees, basic salaries, bonuses, material benefits, performance-based payments, etc.).
- Compliance with some of the principles of the King Code of Corporate Governance, including the splitting of the functions of chairman and chief executive, the appointment of an audit and remuneration committees (majority to be non-executive and independent), appointment of a risk committee (depending on the nature of business), appropriate board structure, non-share trading periods, etc.

The JSE has the right to list companies that do not strictly comply with the above requirements, but this will only occur in exceptional circumstances.

Investment entities and property and mineral companies that are listed on the Main Board have certain modified criteria for listing. These will not be elucidated here.

4.7.3 Development capital market

The Development Capital Market (DCM), according to the JSE, was created in 1984 in recognition of "…the need to encourage the growth of small to medium sized businesses and companies which are not able to list on the Main Board…"[20] The criteria to be met by companies applying for a listing on the DCM are less onerous than those of the Main Board.

The main requirements of a listing on the DCM include:

- A subscribed capital, excluding revaluations of assets, of at least R1 million, in the form of not less than one million shares in issue.
- A satisfactory profit record for the preceding two years (or in exceptional circumstances, a lesser period), the last for which the company reported an audited profit level of at least R500 000 before taxation (mineral companies are exempt from this requirement).
- A minimum of 10% of each class of equity shares in issue is to be held by the public.
- The company must have a minimum of 75 public shareholders.
- The minimum initial issue price must be not less than 50 cents per share.

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4.7.4 Venture capital market

4.7.4.1 Introduction

The Venture Capital Market (VCM), according to the JSE, was formed in 1989 "To assist companies specialising in venture capital projects (venture capital conglomerates) or single venture companies …"[21] The record of the success of companies listed on the VCM has not been respectable. Consequently the requirements are relatively onerous.

4.7.4.2 Pre-application submission

The JSE requires that companies desirous of listing on the VCM submit a memorandum prior to the submission of an application for listing. The memorandum is required to contain details on the following:

- A synopsis of the nature of business of the company
- The modus operandi of the company
- The company's business plans and prospects

The company may only make a formal application for a listing if the executive committee of the JSE approves the memorandum.

A *single venture company*, in addition to the above, is required to provide an analysis of its prospects, based on its market segment growth, an analysis of the competitive environment in which it operates and its estimated market share. It is required to present a three-year business plan, including forecast balance sheets, profit and loss accounts and cash flows.

A *venture capital conglomerate* must satisfy the JSE that it has as its dominant business the professional operation of a company that holds and will continue to hold a portfolio of investments in ventures, each of which is characterised by the fact that the venture capital conglomerate:

- Has an investment in each underlying venture which is substantially an equity investment
- Is able to add value to each of its underlying venture projects through providing support services and proper financial disciplines.
- Has conducted adequate research into the management strength and commercial viability of each of its underlying ventures.
- Has drawn up a business plan for the next three years in respect of each underlying venture and of the combined portfolio, with forecast balance sheets, profit and loss accounts and cash flow statements.

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4.7.4.3 Key requirements of a VCM listing

- The company must have a subscribed capital, excluding revaluations of assets, of at least R500 000, in the form of not less than one million shares in issue.
- The JSE will not list securities held by the entrepreneurs of the VCM company amounting to 75% of their shareholding/s (as held immediately prior to any marketing of securities in conjunction with the application for listing) for a period of at least two years subsequent to listing being granted. This is to ensure that the entrepreneurs to remain financially committed to the VCM company.
- A profit history is not required but the company should indicate credible returns on capital that on a time-weighted basis are above average in its analyses of future earnings.
- The public must hold a minimum of 5% of each class of equity shares.
- The company must have a minimum of 75 public shareholders.
- The minimum initial price of the shares must be not less than 50 cents per share.
- The majority of directors and managers must have had successful records of achievement in their respective rules.
- The company is required to have a warning of the speculative nature of investment in such a company at the beginning of its prospectus, or pre-listing statement.

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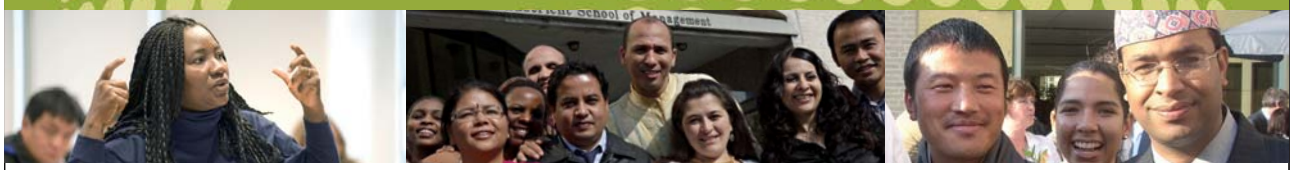
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4.7.5 Alternative exchange

Many countries have "Alternative Exchanges", which essentially are divisions of exchanges that have less-onerous listing requirements. We present the South African example: the Alternative Exchange (ALT^X) was launched in August 2003 and started trading in October 2003. According to the launch brochure of the ALT^X of the JSE:

"The Alternative Exchange, ALT^X, is a division of the JSE…ALT^X is the JSE's exciting 'parallel' market for small to medium and growing companies. It offers investors opportunities to invest in a myriad of companies and is designed for investors who understand the nature of the market and are prepared to accept the potential risk and rewards of investing in growing companies. Companies can join to issue new shares, raise funds, widen their investor base and have their shares traded on a regulated market. ALT^X is designed to appeal to a diverse range of companies in all sectors including:

- Young and fast-growing businesses including start-ups
- Management buy-outs and buy-ins
- Family-owned businesses
- Black economic empowerment companies
- Junior mining companies."

As to "why and how ALT^X has been developed", the JSE reports:

"Securities exchanges should be natural sources of capital at every stage of development and it is appropriate that they make provision for younger companies as well. In effect, ALT^X neatly fills this gap, providing smaller companies access to much-needed capital and facilitating smoother growth than they could previously have expected. In a symbiotic process, the investment horizons for investors are proportionately expanded. The knock-on effect helps fuel the SME sector in particular and the economy in general. Another positive role of the Alternative Exchange is that of a breeding ground for vigorous younger companies – listed firms are the potential powerhouses of the future. Intensive research into global high growth securities exchanges was conducted – 'best practice' of the most successful is therefore built into from day one."

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The Alternative Exchange has alternative listing requirements to those that apply to the main Board. The requirements include:

- Appointment of a Designated Adviser
- No profit history required (but not more than R8 million)
- A share capital of R2 million
- Appointment of a financial director
- At least 100 public shareholders, who must hold at least 10% of the issued shares
- Announcements must be made on SENS and the ALT^X website (press advertising is encouraged but is not compulsory)
- At least 25% of the directors must be non-executive.

The Designated Advisors are the Sponsors that apply in the case of the Main Board, but they have additional responsibilities. According to the JSE:

"ALT^X has created the role of the Designated Adviser. Going public is a fairly complex process and Designated Advisers will play a key role in ensuring companies comply with the listing requirements thereby providing reassurance to investors…. In addition, Designated Advisers is built on a culture of relationship management, which aims to enhance the quality of companies listed as well as ensuring maximum information dissemination for investors to make informed investment decisions."

Other relevant information on the ALT^X:

- Listing fees are substantially lower compared with the main Board (R20 000 per annum).
- There is a focus on the enhancement of the skills of directors of companies through a compulsory education programme termed the "Director Induction Programme." This programme is presented by market practitioners and it covers corporate governance, listing requirements, the Companies Act, etc.
- Trading of shares is on the same system as the Main Board.
- Market surveillance is vigorous in order to eliminate irregularities.
- Settlement of securities through takes place through STRATE, (the authorised CSD for the electronic settlement of financial instruments in South Africa).

According to the JSE, it is envisaged that the Alternative Exchange will replace the DCM and the VCM in time.

4.8 Types of companies that list[22]

In most markets the companies that are permitted to list their shares on an exchange are *public limited liability companies*. These are companies whose shareholders' liability is limited to the purchase price of their shares. Clearly then, close corporations, partnerships, sole proprietorships and proprietary limited companies are not permitted to list.

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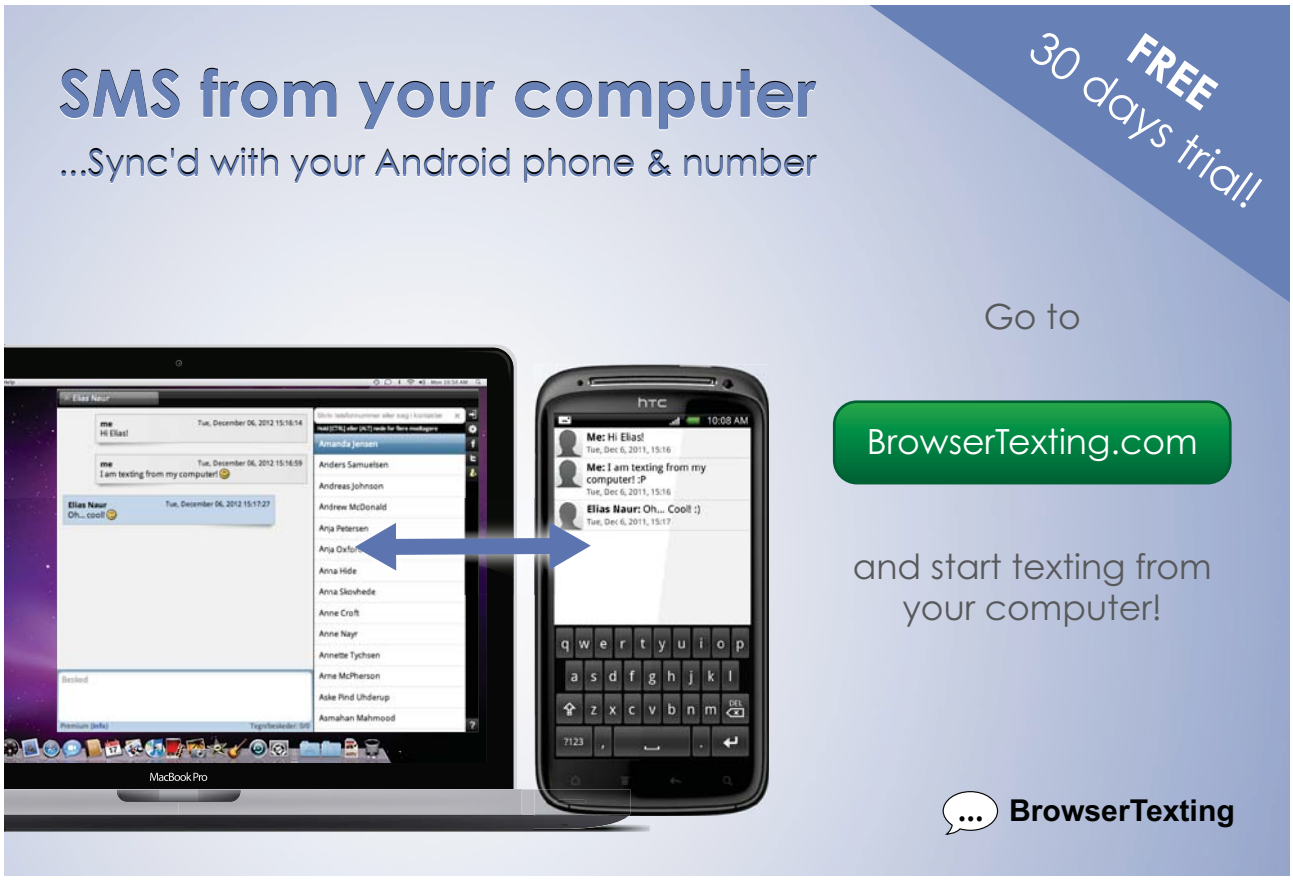
Not all public limited liability companies are candidates for a listing on a share exchange. The companies that are candidates are generally those that need to utilise the benefits attached to a listing, the main one being the ability to raise capital at a relatively cheap price. This does not apply to companies/firms such as rating agencies and auditors. Apart from not requiring much capital, such companies/firms need to remain completely objective in the conduct their business (which means of course that they cannot have any shareholders other than the persons that work for the companies/firms).

The companies that list on exchanges vary greatly in terms of nature of business. Table 1 presents the listed company industry classification system (called the *industry classification benchmark* – ICB) created in 2004 by index companies FTSE and Dow Jones, and adopted by many exchanges around the world. As will be seen, in the ICB there are:

- 10 industries
- 18 supersectors
- 39 sectors
- 104 subsectors.



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Industry	Supersector	Sector	Subsector
Oil & gas	Oil & gas	Oil & gas producers	Exploration & production
			Integrated oil & gas
		Oil equipment & services	Oil equipment & services
			Pipelines
Basic materials	Chemicals	Chemicals	Commodity chemicals
		Chemicals	Specialty chemicals
	Basic resources	Forestry & paper	Forestry
			Paper
		Industrial Metals	Aluminium
			Nonferrous metals
			Steel
		Mining	Coal
			Diamonds & Gemstones
			General mining
			Gold mining
			Platinum & precious metals
Industrials	Construction & materials	Construction & materials	Building materials & fixtures
			Heavy construction
	Industrial goods & services	Aerospace & Defence	Aerospace
			Defence
		General industrials	Containers & packaging
			Diversified industrials
		Electronic & electrical equipment	Electrical Components & Equipment
			Electronic Equipment
		Industrial engineering	Commercial vehicles & trucks
			Industrial machinery
		Industrial transportation	Delivery Services
			Marine Transportation
			Railroads
			Transportation Services
			Trucking
		Support services	Business support services
			Business training & employment agencies
			Financial administration
			Industrial suppliers
			Waste & disposal services
Consumer goods	Automobiles & parts	Automobiles & parts	Automobiles

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Industry	Supersector	Sector	Subsector
			Auto Parts
			Tires
	Food & beverage	Beverages	Brewers
			Distillers & Vintners
			Soft Drinks
		Food producers	Farming & fishing
			Food products
	Personal & household goods	Household goods	Durable household products
			Nondurable household products
			Furnishings
			Home construction
		Leisure goods	Consumer electronics
			Recreational products
			Toys
		Personal goods	Clothing & accessories
			Footwear
			Personal products
		Tobacco	Tobacco
Healthcare	Healthcare	Health care equipment & services	Health care providers
			Medical equipment
			Medical supplies
		Pharmaceuticals & biotechnology	Biotechnology
			Pharmaceuticals
Consumer services	Retail	Food & drug retailers	Drug retailers
			Food retailers & wholesalers
		General retailers	Apparel retailers
			Broadline retailers
			Home improvement retailers
			Specialised consumer services
			Specialty retailers
	Media	Media	Broadcasting & entertainment
			Media agencies
			Publishing
	Travel & leisure	Travel & leisure	Airlines
			Gambling
			Hotels
			Recreational services
			Restaurants & bars

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Industry	Supersector	Sector	Subsector
			Travel & tourism
Telecommuni-cations	Telecommuni-cations	Fixed line telecommunications	Fixed line telecommunications
		Mobile telecommunications	Mobile telecommunications
Utilities	Utilities	Electricity	Electricity
		Gas, water & multiutilities	Gas Distribution
			Multiutilities
			Water
Financials	Banks	Banks	Banks
	Insurance	Nonlife insurance	Full line insurance
			Insurance brokers
			Property & casualty insurance
			Reinsurance
		Life insurance	Life insurance
	Financial services	Real estate	Real estate holding & development
			Real estate investment trusts
		General Financial	Asset managers
			Consumer finance
			Specialty finance

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			Investment services
			Mortgage finance
	Investment instruments	Equity investment instruments	Equity investment instruments
		Non-equity investment instruments	Non-equity investment instruments
Technology	Technology	Software & computer services	Computer Services
			Internet
			Software
		Technology hardware & equipment	Computer Hardware
			Electronic Office Equipment
			Semiconductors
			Telecommunications Equipment
Basic data obtained from: www.jse.co.za			

Table 1: FTSE / Dow Jones industry classification system (industry classification benchmark – ICB)

This table provides an excellent view of the types of companies that are candidates for a listing. Few countries, however, are able to boast the full list provided in Table 1.

4.9 Listed products other than shares

4.9.1 Introduction

In addition to shares, many exchanges also have other products listed. South Africa, for example, has a *Specialist Instruments (or Securities) Market* and the following instruments are listed:

- Kruger rands
- Debentures
- Exchange traded funds (ETFs)
- Preference shares
- Warrants.

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4.9.2 Kruger rands

There are 4 Kruger rands listed: one ounce, half ounce, quarter ounce, and one-tenth ounce.

4.9.3 Debentures

Only a few debentures are listed on the JSE. A debenture is a fixed-interest debt security issued by a company. These instruments are falling into disuse as companies are more inclined to issue bonds. A listing requirement is that the number of public shareholders (excluding employees and their associates) must be at least 25.

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4.9.4 Exchange traded funds

Name of ETF	Index tracked
Satrix 40	ALSI 40 FTSE/JSE index (comprised of the top shares listed on the Main Board of the JSE by market capitalisation)
Satrix FINI	FINI 15 index (comprised of the top 15 companies in the *financial group of sectors*, ranked by market capitalisation)
Satrix INDI	INDI 25 index (made up of the top 25 companies in the *industrial group of sectors*, ranked by market capitalisation)
Satrix RESI	Resources index
Satrix SWIX TOP40	Shareholder weighted Top40 index
NewRand Fund	A rand-hedge fund that tracks a customised new rand hedge index calculated by the JSE (comprised of a number of rand hedge shares)
NewGold Fund	Gold index
Itrix FTSE 100	Top 100 shares listed on the London Stock Exchange in terms of market capitalisation
Itrix Dow Jones Euro Stoxx 50	The 50 most liquid shares in the Eurozone area (for example: Deutsche Bank, AMN Amro)
*Derived from: **S**outh **A**frican **Tr**aded **I**nde**x.** Satrix is owned by the JSE, Deutsche Securities and Sanlam Investment Management.	

Table 2: Exchange-traded funds

Examples of the *exchange-traded funds* (ETFs, but also called *traded index funds*) listed on the JSE (Equities Division) are as shown in Table 2.

An index fund is a fund set up by some financial market participant (for example a bank or the JSE itself) to track a particular index (local or foreign). This means that the fund has liabilities in the form of tradable "shares" (although they are more akin to units of unit trusts), and assets in the form of the specific equities that make up the index, according to their weightings in the index. The price of the shares, while free to find its own level, tends to track the index value.

It will be apparent that an investment in a traded index fund is an inexpensive way of gaining exposure to segments of the market; exposure is gained without having to purchase the individual shares that make up the index. Dividends are also payable to the holders of the shares of the ETF.

4.9.5 Preference shares

There are almost 30 preference share is listed on the JSE. Examples are, i.e. Standard Bank Investment Corporation 6.5%, the AECI 5.5%, the Barloworld 6%, Nampak 6%, and so on. One of the listing requirements for preference shares is that the number of public shareholders must be at least 50.

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4.9.6 Warrants

Warrants are put and call warrants on share indices and on specific shares. As noted earlier, these are not call warrants on specific shares issued by the relevant companies (that lead to the issue of new shares when exercised).

An example is the "RM ALSI A2" (the abbreviation found in the newspapers). This translates to:

- RMB = the issuer
- ALSI = the FTSE-JSE all share index
- A2 = the rating
- The abbreviation does not indicate that this is a warrant, but it is[23], and it is most likely a call warrant on the all share index.

Another example is the "SB NPN CDA". This translates to:

- SB = Standard Bank
- NPN = JSE code for the share
- C = call warrant
- D = discount
- A = the first in the series.

4.10 Methods of listing[24]

4.10.1 Introduction

In Figure 1 above that presented the organisational structure of financial markets it was stated that there are four *methods of issuing securities* (i.e. raising capital):

- Public issue.
- Private placement.
- Auction.
- Tap issue.

In many countries there are three principle methods of *obtaining a listing* for ordinary shares on the share exchange:

- An introduction.
- A private placing.
- A public offer:
  - An offer for subscription.
  - An offer for sale.

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4.10.2 An introduction

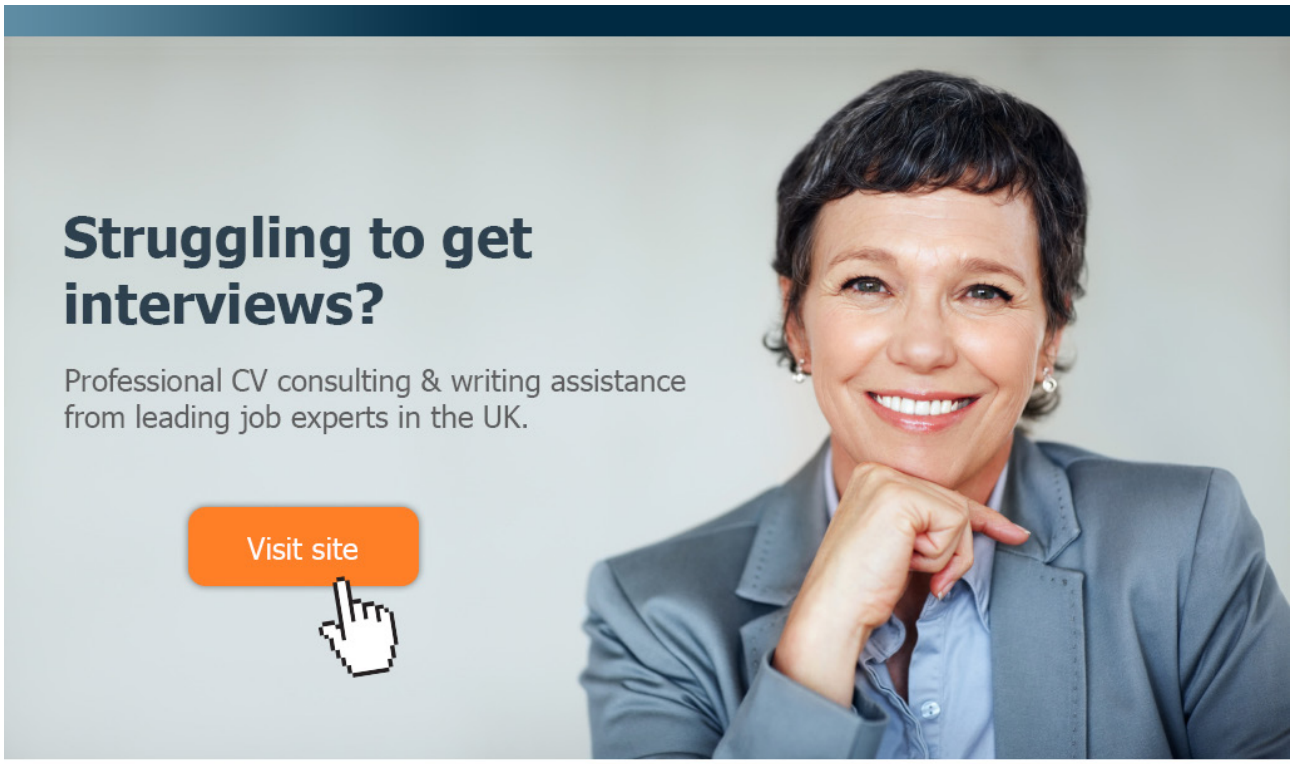
An *introduction* is suitable in the case of a company that does not need to raise capital and satisfies the JSE requirement in terms of the public spread of shareholding, capital size, etc. It is the quickest and cheapest means of listing, as there is no offer to the public and minimum formalities are required.

It will be apparent that the introduction is a method of obtaining a listing, and not a method of issue, because no additional shares are issued.

4.10.3 A private placing

The *private placing* (or private placement) is a common method used to obtain a listing. In this case, shares in the company are offered to prospective shareholders privately. This method of placing is often given effect by the appointed sponsor or corporate advisor (usually a merchant bank that acts in both capacities). A prospectus is required.

With the private placing new shares are issued and capital is raised. Often, the private placing is combined with a *public offer* (see next section) in order to obtain the required spread of shareholding (a listing requirement).



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4.10.4 A public offer

A *public offer* is the same as the *public issue* mentioned in the figure on the organisational structure of the financial markets, and this method of issue / method of obtaining a listing may be either:

- An offer for subscription
- An offer for sale.

In the *offer for subscription*, the public is invited to subscribe for a specified number of unissued shares. The *proceeds accrue to the company*.

In the *offer for sale*, existing shareholders invite subscribers to purchase a certain number their shares. The *proceeds do not accrue to the company*, but to the existing shareholders.

The *public offer* method of listing requires the production of a *prospectus*, and this is required to be approved and registered with the Registrar of Companies. The public has a stipulated period within which to submit their applications and payment.

In the event of an over-subscription, the company has to decide on the basis of allocation. In most cases this is agreed in advance because most offers are over-subscribed. The company earns interest on the excess payments received if the offer is over-subscribed until the date of refund. The interest is used to offset the substantial cost of the public offer.

4.11 Steps involved in a listing[25]

4.11.1 Introduction

The listing of shares by a company is a lengthy process and a number of advisors are involved in the process. The following is a rough guide to the steps involved in a listing:

- Appointment of professional advisors
- Time frame for a listing
- Other steps.

4.11.2 Appointment of professional advisors

Because the listing process is elaborate and detailed and the disclosure requirements are onerous, the assistance of experienced professional advisors is required. Much time is expended in finding competent and experienced professional advisors. The categories of advisors are as follows:

- Sponsor
- Corporate advisor
- Legal advisor

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- Accountant
- Transfer secretaries (Central Securities Depository Participant – CSDP)
- Public relations consultant
- Technical advisors (in some cases).

The advisors' tasks are as follows:

Sponsor

The appointment of a sponsor is a requirement of the JSE. The JSE approves the sponsors (and a list is obtainable from the Listings Division of the JSE). The sponsor is required to:

- Satisfy itself that the listings criteria are met and that the company is a suitable candidate for a listing
- Guide the company as to the application of the listings requirements
- Explain to the directors of the company the nature of their responsibilities and obligations as directors of a listed company
- Submit the listing documentation to the JSE
- Fulfil a liaison role between the JSE / the public and the company.

Corporate advisor

A corporate advisor is a person from the *corporate finance division* of an auditor, a stockbroker or a merchant bank, and many companies desirous of listing find it useful to utilise the experience of such an advisor. The corporate advisor's main functions are to:

- Advise the company as to the application of the listings requirements and the directors as to the nature of their responsibilities and obligations as directors of a listed company (similar function as the sponsor's). (It is to be noted that often the sponsor and the corporate advisor are the same person/s.)
- Advise on the method of listing, the marketing of the offer, the size and terms of the offer, and the timing and pricing of the offer.
- Advise on market conditions and the receptiveness of the market for the company's shares.
- Co-ordinate the listing process.
- With the assistance of the company, the legal advisor, accountant and sponsoring broker, draft the listings documentation.
- Approach the investment community with a view to generating a demand for the company's shares.
- Arrange the placing if the method of listing to be adopted is a private placing.
- Underwriting or arranging for the underwriting of the offer if the method of listing to be adopted is a public offer and the offer is to be underwritten.

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Legal advisor

Most companies also appoint a legal advisor. The main responsibilities of the legal advisor are to:

- Assist with the drafting of the listing documentation to ensure that all legal requirements are complied with.
- Draft the necessary agreements if there is an underwriting or a placing.
- Prepare the share option scheme for the company if such a scheme is to be introduced.

Accountant

The JSE requires that a registered accountant and auditor report in the prospectus or pre-listing statement, inter alia, on the profits and the financial position of the company over the previous three years.

Transfer secretaries

Transfer secretaries are responsible for setting up the company's register of members, issuing of share certificates, registration of transfers and execution of company actions such as dividend payments, company circulars, etc. In the case of dematerialisation of securities the transfer secretary holds the shareholding in electronic form on behalf of the shareholder (but in his/her name) in its capacity as a Central Securities Depository Participant (CSDP).

The SSA in this regard determines:

"'participant' means a person that holds in custody and administers securities or an interest in securities and that has been accepted…by a central securities depository as a participant in that central securities depository…."

Public relations consultant

Some companies use public relations consultants to assist with the promotion of a positive image for the company prior a listing. This is clearly done in order to ensure a successful listing.

Technical Advisor

Certain companies, such as mining companies, are technical in nature. In these cases, the JSE requires the prospectus or pre-listing statement to contain a competent person's report (i.e. technical advisor's report) on the company and its exploration and/or mining activities.

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4.11.3 Time frame for listing

The time frame for a listing normally covers between 9 and 13 weeks, depending on the complexity of the listing and method of listing (assuming that the professional advisors are competent). According to the JSE, the time frame presented in Table 3 is reasonable.

Week	Action
0	Appoint advisors Meet to consider legal, financial and tax implications and method of listing Prepare timetable for listing Commence preparation of accountant's report Commence drafting of documentation
1–3	Arrange meetings to finalise draft documentation (prospectus / pre-listing statement) Finalise accountant's report
4	Draft documentation submitted to the JSE for informal comment and Registrar (if a public offer)
5–8	JSE formal approval, and Registrar's approval (if a public offer) obtained
9	Listing commences if an introduction, or placing or public offer commences
11	Placing closes
12	Listing commences if a placing or public offer closes
13	Listing commences if a public offer
Source: www.jse.co.za	

Table 3: Listing time frame

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4.11.4 Other steps

The other steps in the process of listing are significant:

- *Marketing the issue*. The pre-listing statement is a form of advertising the issue to the public. However, the main buyers of any issue are the large institutions. Usually the sponsor and corporate advisor, together with the management of the company to be listed, approach them prior to the issue.
- *Pricing the issue*. This is an important part of the process, and this is where the corporate advisor and sponsor also have an important role to play. Part of the advice is to make the offer at a price that is at a discount to the fair price. This will ensure a successful issue, and a rise in the price after listing, and this will imbue the investor with a "warm, fuzzy feeling" toward the share. This has important positive implications for rights issues in the future.

4.12 The prospectus[26]

Reference has been made to the prospectus and to the pre-listing statement. This requires some elaboration. According to one exchange[27]:

"When a company applies for a listing, it must produce a pre-listing statement containing certain prescribed information concerning the company, its business and its prospectus. While the pre-listing statement may promote investment in the company's shares, it is not an invitation to the public to subscribe for shares, but rather aimed at enabling potential investors to make an informed investment decision regarding the company's shares. If the pre-listing statement contains a public offer, it will also have to comply with the prospectus provisions contained in Section 148 and Schedule 3 of the Companies Act."

As regards the prospectus, the two relevant sections of the Companies Act were discussed earlier. Sections 145 and 146 determine that a prospectus must be prepared and issued in the case of a public offer. A public offer, as noted earlier, is:

- An offer for subscription (the proceeds accrue to the company) (section 145)
- An offer for sale (the proceeds do not accrue to the company, but to the existing shareholders) (section 146).

Section 148 of the Act ("Matters to be stated in prospectus") determines that:

"1 (a) Every prospectus issued in terms of this Act shall contain a fair representation of the state of the affairs of the company, the shares of which are being offered and shall state at least the *matters* specified in, and set out the *reports* referred to in, Part I and Part II of Schedule 3."

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The title of Schedule 3 reads: "Matters which must be stated in a prospectus in addition to those specified in the Act". Thus, all information / requirements relating to the prospectus are outlined in three documents:

- Sections of the Companies Act relating to the prospectus
- Part I of Schedule 3 of the Companies Act (matters)
- Part II of Schedule 3 of the Companies Act (reports).

The documents are elaborate; consequently only the headings are provided (see tables 4–6).

Section 148	Matters to be stated in prospectus
Section 149	Statement on face of issued prospectus
Section 150	Consent of person named as director
Section 151	Consent by experts and others
Section 152	Contracts and translations thereof to be attached to prospectus
Section 153	Where the issue is underwritten
Section 154	Signing, date and date of issue, of prospectus
Section 155	Registration of prospectus
Section 156	Time limit for issue of prospectus
Section 157	Advertisement as to prospectus
Section 158	Waiver of requirements of this Chapter void
Section 159	Variation of contract mentioned in prospectus
Section 160	Liability for untrue statements in prospectus
Section 161	Liability of experts and others
Section 162	Offences in respect of untrue statements in prospectus
Section 163	No diminution of liability under any other law or the common law

Table 4: Sections of the companies act relating to the prospectus (sections 148 to 163)

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1. Name, address and incorporation
2. Directors and management (names and addresses, term of appointment, remuneration, etc.)
3. Auditor (name and address)
4. Attorney, banker, stockbroker, trustee and underwriter (names and addresses)
5. Secretary (name, address and professional qualifications)
6. History, state of affairs and prospects of company
7. Purpose of the offer
8. Share capital of the company (particulars)
9. Loans (details of material loans)
10. Options or preferential rights in respect of shares
11. Shares issued or to be issued otherwise than for cash
12. Property acquired or to be acquired
13. Amounts paid or payable to promoters
14. Commissions paid or payable in respect of underwriting
15. Preliminary expenses and issue expenses
16. Material contracts
17. Interest of directors and promoters
18. Particulars of the offer (class of shares, nominal value of the shares if applicable, number of shares offered, issue price, and other conditions of the offer.
19. Time and date of the opening and of the closing of the offer
20. Issue price
21. Minimum subscription
22. Statement as to adequacy of capital
23. Statement as to listing on stock exchange
24. Requirements for prospectus of mining company

Table 5: Part I of schedule 3 of the Companies Act (matters to be included in prospectus)

25. Report by auditor of company
26. Report by auditor where business undertaking to be acquired
27. Report by auditor where body corporate will become a subsidiary
28. Auditor not qualified to make reports
29. Qualification in respect of references to period of five years
30. Adjustment of figures in reports
31. Report by directors as to material changes

Table 6: Part II of schedule 3 of the Companies Act (reports to be set out in prospectus)

4.13 Underwriting a share issue[28]

Underwriting is where an institution (usually an investment / merchant bank), for a consideration, undertakes to take up all the shares in an issue in the event of the public not subscribing for the issue (an unusual occurrence). Clearly this also means that in the case of a partial subscription the underwriter will take up the shares not taken up by the public.

The Companies Act covers this obligation by the underwriter. Section 153 of the Act ("Where the issue is underwritten") determines that:

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"(1) No prospectus containing a statement to the effect that the whole or any portion of the issue of the shares offered to the public, has been or is being underwritten shall be registered until there is lodged with the Registrar a copy of the underwriting contract and a sworn declaration by the person named as underwriter, or, if such person is a company, by each of two directors of such company, or if such company has only one director, by that director, that to the best of the deponent's knowledge and belief the underwriter is and will be in a position to carry out his obligations even if no shares are being applied for."

An underwriting of an issue has two main advantages (assuming that the underwriter is a prominent institution):

- It gives the potential investor comfort, and thus improves the probability of the issue being successful
- The relevant company is assured of the required amount of capital.

4.14 Other sources of primary issue of listed equity

4.14.1 Introduction

There are a number of other sources of the primary issue of listed equity. As noted above, the main methods of listing are:

- An introduction.
- A private placing.
- A public offer – an offer for subscription.
- A public offer – an offer for sale.

The other sources of primary listed equity are:

- Warrant exercising.
- Convertible bonds.
- Treasury shares.
- Rights offer.
- Renounceable offer.
- Capitalisation issue.
- Issue for cash or acquisition.
- Claw-back offer.

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4.14.2 Warrant Exercising

As noted, a warrant (not the South African definition) is a call option to purchase the shares of a listed company for cash on or before the expiry date at a pre-determined price (strike price). Clearly, the option will only be exercised if it is profitable for the holder to do so, i.e. if the price of the share is higher than the strike price.

4.14.3 Convertible bonds

Bonds are sometimes issued with the option to convert the bond into the shares of the issuer of the bond at predetermined conditions.

4.14.4 Treasury shares

Companies are permitted to purchase their own issue of shares up to certain maximum percentages laid down and as agreed by shareholders at an AGM (subject to the requirements of the Companies Act). It will be apparent that when the company buys its own shares on the exchange, the number of shares in the market falls. These shares, however, are not cancelled in most cases but held as "treasury shares (or stock)". The company has the right to re-issue these shares in exchange for cash or for the exchange of shares (in a takeover or acquisition). This action will add to the number of shares in the market.

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4.14.5 Rights issue (offer)

A rights issue (or rights offer) is an offer of additional shares (part or all of the *unissued* shares under the control of the directors) by a listed company to existing shareholders in proportion to their shareholding in the company. This is done by means of the issue of a document (usually a *letter of allocation* or a *letter of rights*), and the letter may be "renounceable", i.e. to relinquish the right to the shares. The document is tradable as either "nil paid" or "fully paid" for a stipulated period (usually 3 weeks).

4.14.6 Renounceable offer

A listed company can make a renounceable offer. This is where the listed company has the rights to the shares of an issuer (already listed or the applicable shares are to be listed), in proportion to its shareholding in the issuer, and it renounces part or all of the rights to the issuer's shares, in favour of its shareholders in proportion to their shareholding.

4.14.7 Capitalisation issue

A capitalisation issue is where a listed company makes an offer of new shares to existing shareholders in lieu of dividends. This is usually done to retain the liquid capital of the company. A capitalisation issue can also be made from the reserves of the company, but this is unusual because the shareholders have the right to the reserves in any case.

4.14.8 Issue for cash or acquisition

An issue for cash or acquisition is where a listed company is given approval by existing shareholders (general mandate or specific mandate) to issue new shares for the purpose of acquiring new funds or for the purposes of a merger or an acquisition (in which case the shares are issued in consideration for the shares of the company purchased or taken over).

4.14.9 Claw-back offer

A claw-back offer is where the listed company offers new shares for cash to a third party, and the third party offers them to the listed company's shareholders as in the case of a rights offer, i.e. in proportion to their shareholding.

4.15 Summary

The primary equity market is the market for the issue of new shares, and it plays an important role in the economy in terms of the raising of capital for business. The listing of new equity on an exchange has many advantages, one of which is the raising of capital easily and at a cheaper price, but there are disadvantages, such as the cost. One of the major cost items is the number of professionals that are required to be involved. The financial requirements are also onerous.

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However, in many countries these disadvantages are lessened by the formation of a "board" for the listing of smaller companies.

There are three methods of listing and for all a detailed prospectus (= one of the major costs) is required. There are a number of other sources of primary market issue of equities, such as rights offers, convertible bonds, warrants and so on.

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5 Secondary market

5.1 Learning outcomes

After studying this text the learner should / should be able to:

- Define the secondary equity market.
- Evaluate the significance of secondary equity market.
- Explain the structure of secondary equity market.
- Name and detail the participants in secondary market.
- Provide an outline of the ATS trading system.
- Appreciate the mechanics of dealing (from point of view of client).
- Define clearing and settlement.
- Interpret equity market indices.
- Understand the significant role of information in financial markets in general.
- Explain the three standards of financial market efficiency.

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5.2 Introduction

We now turn our attention to the issues surrounding trading of equities in the secondary equity market. The following is the outline:

- Definition of secondary market.
- Significance of secondary market.
- Structure of secondary equity market.
- Participants in secondary market.
- Trading system: automated trading.
- Mechanics if dealing (from point of view of client).
- Clearing and settlement.
- Cost of dealing.
- Equity market indices.
- Equity market efficiency.

5.3 Definition

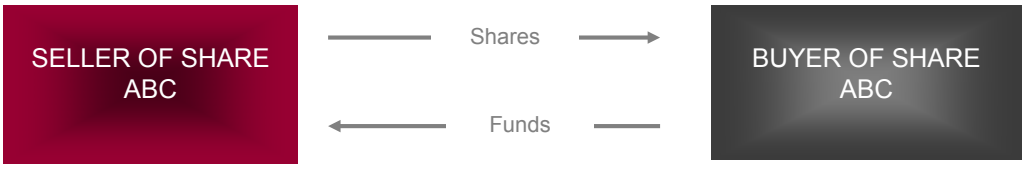

Figure 1: exchange of value in the secondary equity market

As mentioned before, the primary market is the market for the issue of newly created securities, and the *secondary market* is the market for the exchange of previously issued securities. The issuer of the securities does not receive funds in the secondary market – the seller does (see Figure 1).

It is the market that enables *holders* of previously issued securities to acquire funds by disposing of their holdings (sellers), and enables investors to invest funds by purchasing existing securities (buyers). It also enables issuers to buy back their own securities, assuming they have the authority to do so, and speculators/arbitrageurs to endeavour to profit from short-term price movements and/or price variances in different markets.

The *secondary equity market* may be defined formally as the conventions, facilities and legal prescriptions that exist for the exchange of equities in issue.

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5.4 Significance of secondary market

It was noted earlier that the secondary securities market plays a significant role in the financial system. In the case of the secondary equity market, the following advantages may be mentioned:

- Price discovery. The interplay of the supply of and the demand for shares brings about the establishment of prices for them. Some shares are actively traded while others are not. The issue of market efficiency is discussed later.
- An active secondary equity market facilitates primary market issues, i.e. improves the capacity of issuers to place newly created equities. The knowledge by investors that they will be able to dispose of securities if they so desire, i.e. an exit mechanism, brings this about.
- An active secondary market gives rise to the raising of capital at a price that is often cheaper than in the absence of this market. In other words well-run companies are rewarded with the ability to raise capital cheaply in comparison with companies that are not well run. This can be called a "discipline" factor.
- An active secondary market provides the benchmark for the determination of the pricing of new issues.
- An active secondary equity market registers changing market conditions rapidly, indicating the receptiveness of the market for new primary issues.
- An active secondary equity market enables investors to rapidly adjust their portfolios in terms of size, risk, return, liquidity and maturity.

5.5 Structure of secondary equity market

The organisational structure of spot financial markets is presented in Figure 2.

Equity markets are formal (exchange) or OTC. In the US all bonds are OTC and many shares are traded OTC.

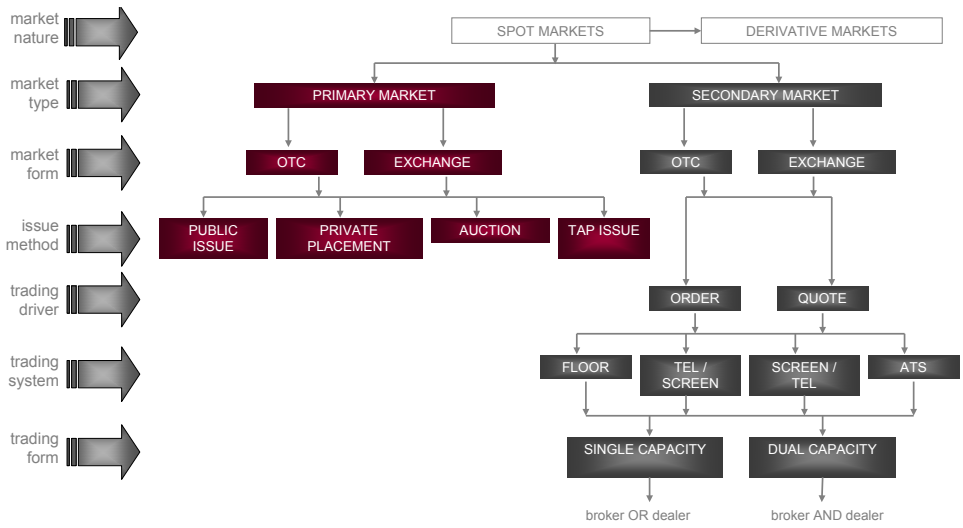

Figure 2: organisational structure of spot financial markets

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The best foreign example of an OTC market is NASDAQ (National Association of Security Dealers Automated Quotation System). It is an electronic OTC market. In this market the client calls a broker, who in turn contacts a number of dealers in NASDAQ quoted shares for quotes. S/he obviously accepts the best quote. "Dealer" here means market maker. There are a number of "dealers" in each share, and they continuously make a market in the shares in which they specialise.

However, in most countries the secondary equity market is *formalised* in the form of an exchange. It is formalised because risk-management processes that protect both the consumer of its services (the investors, speculators and so on) and the members of the exchange are "collectivised". This means it is cheaper to pool risk management devices than for each broker to introduce them individually. The consumer draws more comfort from dealing with a member of an exchange than with a non-regulated broker-dealer, and this enhances market liquidity, which has major benefits in terms of price discovery (and other functions of the secondary market).

Although an exchange exists, in many markets there is no legal impediment to investors trading amongst themselves. The large investors (institutions[29]) do sometimes trade between themselves, but this is rare. These off-market deals are generally reported to the exchange and included in the turnover data.

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There are two methods / systems of price determination (trading driver): quote-driven systems and order-driven systems. Most countries have an *order-driven* system, and some have a combination of the two systems: order-driving and market making (quote-driving). Where the latter exists the clients are usually informed as such.[30]

There are four trading systems as indicated in Figure 2, and two apply in exchange-driven equity markets:

- Floor (also known as "open outcry").
- Automated Trading System (ATS).

The floor (open outcry) trading system is where members of the exchange (we use the generic term broker-dealers) meet on a physical "floor" (i.e. a room) and "cry out" orders which they have from clients. They cry out in order to "advertise" the order, hoping to find another member with an opposite order, so that the order can be fulfilled. If an opposite order is found and a deal is consummated the buyer and seller principals pay / receive the agreed price less the commission of their broker-dealer.

When a deal is done it is recorded in some fashion: a chalk board or an electronic board, and is made available immediately to the general public in the interests of transparency. There are some variations on the theme of open outcry, such as the "call-over" system in small markets such as the Malawi Stock Exchange.

There are disadvantages to the open outcry system, such as a particular broker-dealer may be known to transact for a particular client (a large fund manager) which could have a major price effect (in small markets).

Under the ATS trading system transactions are effected via a single centralised trading system, and trades are matched according to a price-time priority. The system ensures anonymity and guarantees efficient price determination and instantaneous dissemination of price and volume information (i.e. market transparency).

As indicated in Figure 2, there are two "capacities" of trading by the members (broker-dealers) of exchanges: single capacity trading and dual capacity trading. *Single capacity trading* is where the member trades in either the capacity of principal / market maker or in the capacity of agent. "Agent" does not mean that the two principals to a deal are disclosed to one another (such as in the property market). "Agent" in the context of the equity market means (see Figure 3):

- The buyer (investor) does a deal with his broker-dealer and receives a broker's note (which is a note confirming the transaction).
- The seller (investor) does a deal with his broker-dealer and receives a broker's note.

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- The buyer and seller do a deal with a single broker-dealer who happens to have the two clients with matching orders, and both receive a broker's note from the broker (see illustration).
- The broker-dealer does not buy or sell for own account (i.e. to or from a portfolio position); the broker-dealer merely makes the offer to buy from or sell to the "market" (in the case of an ATS merely inputs the deal into the system).

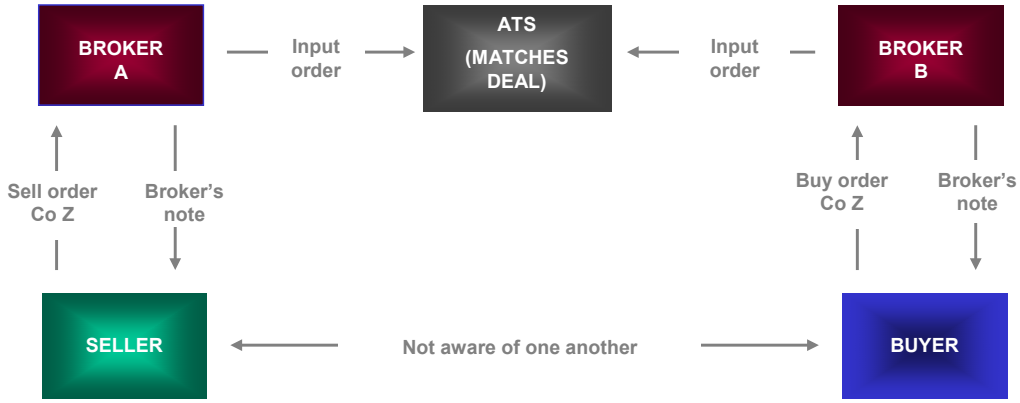

Figure 3: broker-dealer deals on agency basis

The aim of single capacity trading is to avoid the classical conflict of interest inherent in *dual capacity trading* (where the member acts on behalf of clients and for own account): whose deal is done first, the broker's or the client's?

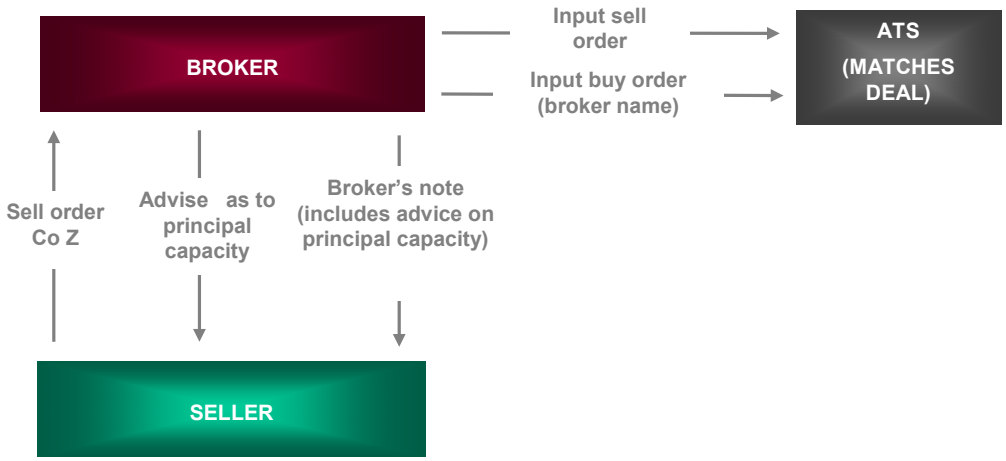

Figure 4: broker-dealer deals on principal basis

Dual capacity trading is permitted in many markets but only under certain conditions. The member has the option of dealing as an agent or as a principal with clients, subject to the disclosure of the capacity dealt in and the obtaining of a signed mandate from the client to deal as a principal. Principal dealing by a member may be depicted as in Figure 4.

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5.6 Participants in secondary market

5.6.1 Introduction

We describe the participants in the secondary market with the assistance of Figure 5.

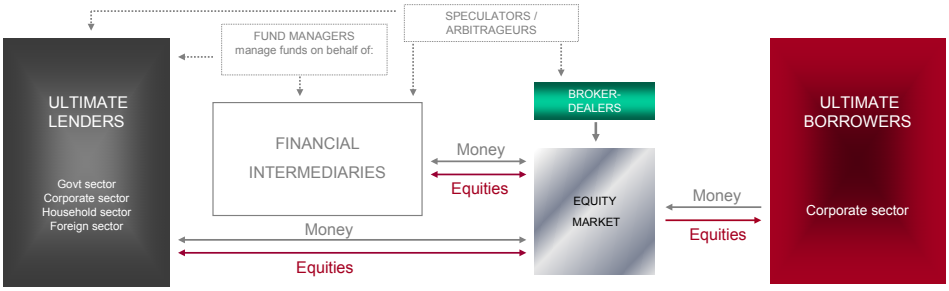

Figure 5: participants in secondary equity market

The participants in the secondary equity market are:

- Members of the exchange (stockbrokers).
- Ultimate borrowers: corporate sector.
- Financial intermediaries.
- Ultimate lenders.
- Fund managers.
- Speculators and arbitrageurs.

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5.6.2 Members of the exchange (stockbrokers)

The stockbrokers (broker-dealers) are the obvious participants. They are the members of the exchange and facilitate transactions between the principals. However, as we noted, the members are able to choose their dealing capacity, i.e. agent or principal (single capacity) or both (dual capacity). In many markets of the world some members themselves are also speculators in shares; in fact there are some members that speculate only (i.e. have no clients).

5.6.3 Ultimate borrowers: corporate sector

As is well know by now, the only issuers of equity are corporate entities that have a share capital. However, the corporate entities that have listed their shares on the exchange also have a role in the secondary market, albeit a small one. This is to the extent that they *repurchase their shares*. In most countries the law allows companies to repurchase their shares under certain conditions. These shares are held as "treasury shares / stock" and may be sold (i.e. issued) again. This will of course only occur when it is propitious to do so.

5.6.4 Financial intermediaries

As seen earlier, the contractual intermediaries (CIs), specifically the retirement funds and insurers, the collective investment schemes (CISs) (specifically the securities unit trusts) and some hedge funds are the largest holders of equities. As such, they are also the largest participants in the secondary market. These intermediaries are active in the market as buyers of equities as they acquire funds for investment and also as buyers and sellers as they change the nature and size of their equity portfolios in response the changing market conditions.

The banks are also holders of equity, but the amount is relatively small; most banks hold shares opportunistically.

5.6.5 Ultimate lenders

The ultimate lenders are made up of the four broad sectors of the economy: the household, corporate, government and foreign sectors. The government is a small holder of equities (listed and unlisted equities in public enterprises). The other three sectors are sometimes large holders of equities.

The *foreign sector* is a considerable participant in the equity markets of some countries as both a buyer and a seller. The sovereign funds (i.e. funds of countries – either the central bank or government) are a prime example.

The foreign sector is also a large participant in *emerging market* with an active secondary equity markets, as well as active foreign exchange markets. These are the ingredients sought by foreign investors, and they enter and exit the market frequently with the purpose of making handsome returns from dividends and capital gains.

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The *corporate sector* is a large holder of equity, both in the form of investments in subsidiaries and in the form of "normal" investments. As such they are active in the secondary market.

The *household sector* is of course comprised of individuals, and they are large holders of equity. They either manage their own portfolios or outsource this function to stockbrokers or to professional fund managers. As large holders, individuals are large participants in the secondary market as they change the nature and size of their portfolios in response to changing market conditions and expectations.

5.6.6 Fund managers

The fund managers are the largest participants in the equity market – not as principals, but as managers of the funds of principals. The principals that outsource their fund management requirements are the securities trusts, the majority of insurers and retirement funds and certain individuals.

Certain stockbrokers also fulfil this function on behalf of individuals.

5.6.7 Speculators and arbitrageurs

Speculators and arbitrageurs are important participants on the equity market in that they add "liquidity" to the market and thereby add to pricing efficiency. Speculators and arbitrageurs do not constitute a separate group of participants; they are part of the categories mentioned above. For example, certain financial intermediaries, such as banks and hedge funds, fall into this category, as do certain retirement funds and securities unit trusts.

Arbitrage is usually defined as the seeking and taking advantage of price anomalies in the same security in different markets, for example the spot equity and the equity futures markets. An arbitrageur may also find an anomaly between the price of a share quoted on both the local market and the London Stock Exchange, buy the share on the one exchange and sell it on the other, and profit from the difference in price.

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Speculators actively seek capital gain opportunities and undervaluation / overvalued opportunities, and take advantage of these by taking "positions" in equities. Taking positions in equities means:

- Purchasing equities with own funds to hold for a period. This is done to profit from a rise in prices.
- Purchasing equities with borrowed funds, i.e. have an equity position "carried" for a period, with the same purpose as aforementioned.
- "Going short" of a share, and borrowing the relevant share in order to deliver the share to the buyer. This is done with the purpose of profiting from a fall in the price of the relevant share. For example, a speculator may believe that the price of a particular share is about to fall. S/he sells 1 000 of the particular share at the current share price of LCC100 per share, borrows 1 000 of the same share in order to deliver it to the buyer (a broker-dealer). Assuming the share price does fall to LCC90, the speculator buys 1 000 of the relevant share at this price, and delivers them to the institution from which it was borrowed. S/he profits by LCC10 per share less the borrowing cost for the borrowing / speculation period. See Figure 6 for an example.

The broker-dealer members of the exchange also fall under this category. As noted, they are active in the secondary market either as pure brokers or as principals. In the latter case they are obliged to disclose this fact to their clients, as well as get from them a signed mandate in this regard.

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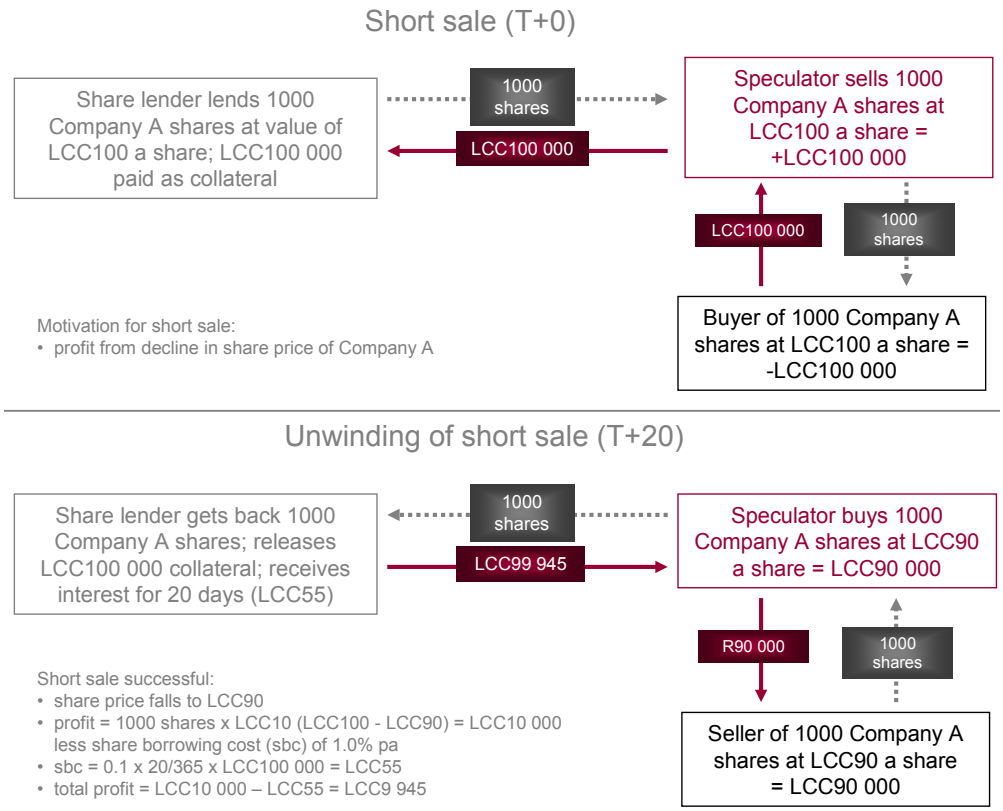

Figure 6: short sale and unwinding of short sale (money as collateral)

5.7 Trading system: automated trading

Because many countries are adopting the ATS system of trading, it is useful to describe the system in some detail. An ATS system generally is a major upgrade from an "open outcry" floor trading system and fundamentally changes the structure of trading to:

- Continuous *order*-driven market with central market principles.
- Dual trading capacity, complemented by member firms voluntarily acting as market makers.
- Fully negotiable brokerage with clients.

The essence of an ATS trading system is as follows[31]:

- The core of the system is the central order book (termed the "book").
- The book is accessed by remote trading workstations linked to the ATS (computer) system (i.e. the broker-dealer companies' offices and branch offices).
- Broker-dealers from over the country enter orders at their workstations. These orders have four elements to them: time of entry on system, size of order (number of shares), price and buy or sell.

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- The orders of the broker-dealers are instantly included anonymously in the order book. All broker-dealers have access to this information.
- All deals on the system are available to the broker-dealers, making the full depth of the market discernible.
- The book is split into bid (buying) and offer (selling) sides and is organised on the principle of priority. Orders on the book are prioritised in terms of price, followed by time within price. The bid with the highest price and the offer with the lowest price are placed ahead of lesser orders.
- The computer system constantly seeks to match the bids and offers. It compares new orders with those in the book, and executes trades whenever the terms of the orders match. Where volumes do not match, but the price does, a deal is executed, with the balance of the volume remaining on the order book.
- Matched trades are advised immediately to the broker-dealer.

5.8 Mechanics of dealing (from point of view of client)

Clients wishing to buy or sell shares do so with companies/firms that are members of the exchange. The process of buying and selling shares (from the point of view of the client) is straightforward. In the case of *buying shares*, the (private) client follows the steps:

- The first step is to find a broker-dealer, i.e. a member of the exchange, with whom the client feels comfortable. "Feels comfortable" means that the member has a similar investment philosophy as the client, i.e. a similar view in respect of investment horizon, quality of shares to deal in, risk profile, etc. It is also important that the client trusts the broker-dealer unreservedly, and is prepared to divulge his personal wealth profile to him/her.
- Brokerage is negotiated, for example 0.25% of the consideration of the deal.
- The client and his broker discuss the shares to be purchased or the portfolio to be managed. The relationship with the broker can take on many forms:
  - Buying and selling upon client instruction.
  - Buying and selling upon client instruction after the advice of the broker-dealer has been sought.
  - Non-discretionary portfolio management by the broker-dealer (i.e. where the broker-dealer manages the portfolio, but is obliged to seek the client's approval before the deal is executed).
  - Discretionary portfolio management, (i.e. where the broker-dealer has full discretion and does not need the sanction of the client before a deal is executed).
- A decision is made in respect of shares to be purchased (personally or for the portfolio; assume the former), and price P.
- The client instructs the stockbroker to purchase 1 000 of the shares of Company XYZ at price P.
- The stockbroker's company/firm opens an account with the exchange (i.e. on the BDA[32] system) in the name of the client.
- The broker-dealer instructs another broker-dealer in the employ of the company/firm to execute the order at price P, i.e. enter the order into the ATS system.

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- An alternative is for the broker-dealer to advise the client to have price limits (above and below price P) within which the broker-dealer has carte blanche to deal. They decide to deal at price P only.
- The broker-dealer enters the order on his trading workstation (computer), and this is transmitted instantaneously onto the central order book managed by the trading system.
- The system seeks a matching opposite order (i.e. a sell order), and finds one.
- The deal is done at price P and the broker-dealer informs the client by telephone. A broker's note follows a day after the deal (T+1).
- The deal is cleared and settled (see next section).
- The client pays within 5 business days (T+5).
- The Transfer Secretary (TS) of Company XYZ records the change in shareholding in the company's share register.
- The CSD (if there is one) records the change in ownership.
- The share certificate (in the case of non-dematerialisation) follows after a few weeks. In the case of dematerialisation, the TS will forward an electronic confirmation of ownership.

In the case of the *selling of shares*, the mechanics is similar, except that the client has to deliver to the broker the share certificate, and sign a transfer deed (STF referred to before) (in the case of non-dematerialisation). This renders the shares sold transferable. The client receives payment within 5 working days of the sale (T+5)[33].

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5.9 Clearing and settlement

Equity *clearing* is usually defined as the matching of trades and the "netting out" of trades. This is given effect by the clearing system. "Netting out" means that the clearing system nets out the trades of each broker-dealer, and the broker-dealer has to deliver scrip / receive scrip on a net basis. With many transactions taking place daily, it is impractical for each trade to be cleared and settled individually.

Settlement means the exchange / delivery of equity scrip and the payment therefore. Part of clearing and settlement is to transfer ownership from seller to buyer.

5.10 Cost of dealing

The costs of dealing (called transaction costs) differ from country to country and may include the following:

- *Brokerage* (usually fully negotiated). An example is 0.25%. This amount is levied on the consideration, before the other costs are taken into consideration. If the amount of shares is 10 000 and the price dealt at is 745 cents, the consideration is LCC74 500.00. The brokerage on this consideration is LCC186.25 (LCC74 500.00 × 0.0025).
- *CSD settlement costs.* The CSD levy is usually a flat amount per deal (e.g. LCC6.00).
- *Insider trading levy.* An example from one country is 0.00071% of the consideration. In the above example, the amount payable is LCC0.53 (LCC74 500.00 × 0.0000071).
- *Value Added Tax.* This applies in many countries. For example if VAT = 14% is payable on the above costs the amount is LCC26.99 (0.14 × (LCC186.25 + LCC6.00 + LCC0.53))
- *Marketable Securities Tax.* MST is usually only payable on purchase transactions and it is levied on the consideration. For example, at MST of 0.25%, in the above example the MST payable is LCC186.25 (LCC74 500 × 0.0025).

All these costs are shown on the broker's note. In the above example, the total transactions costs are LCC406.02, which is equal to 0.54% of the consideration.

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5.11 Equity market indices

5.11.1 Introduction

Individual share prices rise, fall, and rise and fall at different rates, all at different times. If an equity market has many hundred listed shares, how do investors know what is happening in the entire market and/or to different segments of the market, such as the transport sector shares or the gold mining sector shares?

The answer is *equity indices*. Every equity market participant in the world has heard about the Dow Jones Industrial Average (DJIA) index. This is an index (i.e. a number) that demonstrates the performance of the 30 largest industrial companies listed on the New York Stock Exchange (NYSE). The DJIA is the first known equity index: it was started in May 1896 when Mr Dow summated the share prices of the 12 largest industrial companies and divided the numbers by the number of shares. Another eight shares were added to the index in 1916 and a further 10 in 1928.

Other well known foreign indices are the S&P 500 index, the NASDAQ composite, the NYSE composite, the FTSE 100, the DAX indices, the CAC indices, etc.

Share indices essentially provide an *image of the performance of the equity market*. An index may also be described as a tool that "describes" the share market at a point in time in terms of price levels, dividend yield and earnings yield. Portfolio trackers also use indices as benchmarks against which their portfolio performance is measured.

5.11.2 FTSE / Dow industry classification benchmark

Most share exchanges have accepted / adopted the industry classification system (called the *industry classification benchmark* – ICB) created in 2004 by index companies FTSE and Dow Jones. In terms of the ICB there are:

- 10 industries
- 18 supersectors
- 39 sectors
- 104 subsectors.

Table 1 shows all the industries, supersectors, sectors and subsectors of the ICB classification system.

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Industry	Supersector	Sector	Subsector
Oil & gas	Oil & gas	Oil & gas producers	Exploration & production
			Integrated oil & gas
		Oil equipment & services	Oil equipment & services
			Pipelines
Basic materials	Chemicals	Chemicals	Commodity chemicals
			Specialty chemicals
	Basic resources	Forestry & paper	Forestry
			Paper
		Industrial Metals	Aluminium
			Nonferrous metals
			Steel
		Mining	Coal
			Diamonds & gemstones
			General mining
			Gold mining
			Platinum & precious metals
Industrials	Construction & materials	Construction & materials	Building materials & fixtures
			Heavy construction
	Industrial goods & services	Aerospace & Defence	Aerospace
			Defence

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Industry	Supersector	Sector	Subsector
		General industrials	Containers & packaging
			Diversified industrials
		Electronic & electrical equipment	Electrical Components & Equipment
			Electronic Equipment
		Industrial engineering	Commercial vehicles & trucks
			Industrial machinery
		Industrial transportation	Delivery Services
			Marine Transportation
			Railroads
			Transportation Services
			Trucking
		Support services	Business support services
			Business training & employment agencies
			Financial administration
			Industrial suppliers
			Waste & disposal services
Consumer goods	Automobiles & parts	Automobiles & parts	Automobiles
			Auto Parts
			Tyres
	Food & beverage	Beverages	Brewers
			Distillers & Vintners
			Soft Drinks
		Food producers	Farming & fishing
			Food products
	Personal & household goods	Household goods	Durable household products
			Nondurable household products
			Furnishings
			Home construction
		Leisure goods	Consumer electronics
			Recreational products
			Toys
		Personal goods	Clothing & accessories
			Footwear
			Personal products
		Tobacco	Tobacco
Healthcare	Healthcare	Health care equipment & services	Health care providers
			Medical equipment
			Medical supplies

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Industry	Supersector	Sector	Subsector
		Pharmaceuticals & biotechnology	Biotechnology
			Pharmaceuticals
Consumer services	Retail	Food & drug retailers	Drug retailers
			Food retailers & wholesalers
		General retailers	Apparel retailers
			Broadline retailers
			Home improvement retailers
			Specialised consumer services
			Specialty retailers
	Media	Media	Broadcasting & entertainment
			Media agencies
			Publishing
	Travel & leisure	Travel & leisure	Airlines
			Gambling
			Hotels
			Recreational services
			Restaurants & bars
			Travel & tourism
Telecommuni-cations	Telecommuni-cations	Fixed line telecommuni-cations	Fixed line telecommunications
		Mobile telecommunications	Mobile telecommunications
Utilities	Utilities	Electricity	Electricity
		Gas, water & multiutilities	Gas Distribution
			Multiutilities
			Water
Financials	Banks	Banks	Banks
	Insurance	Nonlife insurance	Full line insurance
			Insurance brokers
			Property & casualty insurance
			Reinsurance
		Life insurance	Life insurance
	Financial services	Real estate	Real estate holding & development
			Real estate investment trusts
		General Financial	Asset managers
			Consumer finance
			Specialty finance
			Investment services
			Mortgage finance
	Investment instruments	Equity investment instruments	Equity investment instruments

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Industry	Supersector	Sector	Subsector
		Non-equity investment instruments	Non-equity investment instruments
Technology	Technology	Software & computer services	Computer Services
			Internet
			Software
		Technology hardware & equipment	Computer Hardware
			Electronic Office Equipment
			Semiconductors
			Telecommunications Equipment
Basic data obtained from: www.jse.co.za			

Table 1: FTSE / Dow Jones industry classification system (industry classification benchmark – ICB)

All countries have different indices. The South African equity indices, called the *FTSE/JSE Africa Index Series*, are shown in Box 1.

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Industrials
Consumer goods
Health care
Consumer services
Telecommunication
Utilities
Financials
Technology
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Oil equipment & services
Chemicals
Forestry & paper
Industrial metals
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General industrials
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Industrial transportation
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Life insurance
Real estate
General financial
Equity investment instruments
Software & computer services
Technology hardware & equipment
ALL SHARE SUBSECTOR INDICES
Gold mining
Coal
Diamonds & gemstones
Platinum & precious metals
General mining
SECONDARY MARKETS
Development capital
Venture capital
SPECIALIST INDICES
SA all share financials & industrials
Property unit trust companies
Property loan stock
SA all share industrials
SA listed property index
Capped property index
Dividend+ index (launched in 2006)
SHAREHOLDER WEIGHTED INDEX SERIES
Shareholder weighted top 40
Shareholder weighted all share
JSE SRI INDEX
JSE SRI Index
STYLE INDEX SERIES
Style all share value
Style all share growth
Source: www.jse.co.za

Box 1: FTSE/JSE Africa index series

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5.11.3 Calculation of indices

In the calculation of indices, the following is pertinent:

- Only ordinary shares are included.
- At times index constituents (i.e. shares) are removed from the index, for example:
  - if a company is delisted
  - if the company control passes over to another that is also in the index
  - if a listed company is suspended for more than five days,
  - if liquidator has been appointed for the company.
- Changes to the classification of a company are accommodated in the indices
- Shares are ranked according to market capitalisation, but adjusted for *free float*, i.e. only shares that are freely tradable are included.

Market capitalisation (MC) is therefore defined here as the number of shares outstanding that are freely tradable multiplied by the price of those shares:

$$MC = \text{number of free float shares} \times \text{price per share.}$$

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The indices are *arithmetic averages* of the prices of their constituent securities, weighted by their market capitalisation (adjusted for free float). This means that for a larger company with a large volume of free float shares, its share price movement would have greater effect on the index than that of a smaller company. In addition to the price indices, *earnings and dividends yields* are also calculated. Table 2 provides an example of the calculation of a price index. It will be apparent from this table that percentage change in each share from period to period is weighted by that share's market capitalisation.

BASE YEAR 31 DECEMBER 2005				
COMPANY	MARKET CAPITALISATION (NO OF FREE FLOAT SHARES X PRICE) (LCC MILLIONS)	MARKET CAPITALISATION (% OF TOTAL)	SHARE PRICE	INDEX VALUE
Company A	120 345	49.88	29.36	49.88
Company B	95 678	39.66	12.56	39.66
Company C	25 234	10.46	15.56	10.46
Total	**241 257**	**100.00**		**100.00**
YEAR 1: 31 DECEMBER 2006				
Company A	145 456	51.32	33.56	58.66
Company B	103 678	36.59	13.67	39.82
Company C	34 276	12.09	17.89	13.90
Total	**283 410**	**100.00**		**112.38**
Return over period 1: {[(112.38 / 100.00) –1] x 100} = 12.38%				
YEAR 2: 31 DECEMBER 2007				
Company A	142 564	51.29	32.67	57.07
Company B	102 527	36.89	11.56	33.95
Company C	32 846	11.82	15.67	11.90
Total	**277 937**	**100.00**		**102.92**
Return over period 2: {[(102.92 / 112.38) –1] x 100} = -8.42%				
YEAR 3:31 DECEMBER 2008				
Company A	147 652	49.72	35.78	60.59
Company B	110 593	37.24	17.89	53.04
Company C	38 728	13.04	19.56	16.39
Total	**296 973**	**100.00**		**130.02**
Return over period 3: {[(130.02 / 102.92) –1] x 100} = 26.33%				
Return over entire period: {[(130.02 / 100.00) –1] x 100} = 30.02%				

Table 10.5: Example of calculation of index for industrial sector

In the first year (i.e. the *base year*, or the year from which performance is measured) the index value of each share is equal to its proportion of total market capitalisation expressed in percentage terms. The index value for the sector is equal to the total of each share's index value, i.e. 100.

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At the end of each period each share's index value is equal to the new share price divided by the share price in the base year times the share's proportion of total market capitalisation (MC) expressed as a percentage. For example, the *index value of share A* at the end of the first period (year 1) is:

$$IV_{A1} = (P_{A1} / P_{AB}) \times PMC_{A1}$$

where

IV_{A1} = index value of shares of Co A at year 1
P_{A1} = price of share of Co A at year 1
P_{AB} = price of share of Co A in base year
PMC_{A1} = proportion of Co A's MC of total MC at year 1 (%).

The index value for the sector is the total of all the individual share index values:

$$[(P_{A1} / P_{AB}) \times PMC_{A1}] + [(P_{B1} / P_{BB}) \times PMC_{B1}] + [(P_{C1} / P_{CB}) \times PMC_{C1}].$$

The performance of the shares of *Co A* from the base year to the first year, in percentage terms, is:

$$[(P_{A1} / P_{AB}) - 1] \times 100 = [(33.56 / 29.36) - 1] \times 100 = 14.31\%.$$

Similarly, the performances of the share of *Co B* and *Co C* in the first period are:

$$[(P_{B1} / P_{BB}) - 1] \times 100 = [(13.67 / 12.56) - 1] \times 100 = 8.84\%$$
$$[(P_{C1} / P_{CB}) - 1] \times 100 = [(17.89 / 15.56) - 1] \times 100 = 14.97\%.$$

The arithmetic average of these three numbers is 12.71%. The performance of the *sector* in the first period, however, is:

$$[(IV_{S1} / IV_{SB}) - 1] \times 100 = [(112.38 / 100.0) - 1] \times 100 = 12.38\%$$

where

IV_{S1} = Index value for sector for year 1
IV_{SB} = Index value of sector for base year.

The difference between the two numbers, i.e. 12.71% and 12.38%, shows the influence of the weighting according to the market capitalisation of the shares.

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For the second period the return is –8.42% {[(102.92 / 112.38) –1] × 100}, and for the third period the return is 26.33% {[(130.02 / 102.92) –1] × 100}.

The return for the entire period is equal to the index value for the period less the index value at the start of the period:

$$130.02 - 100 = 30.02\%.$$

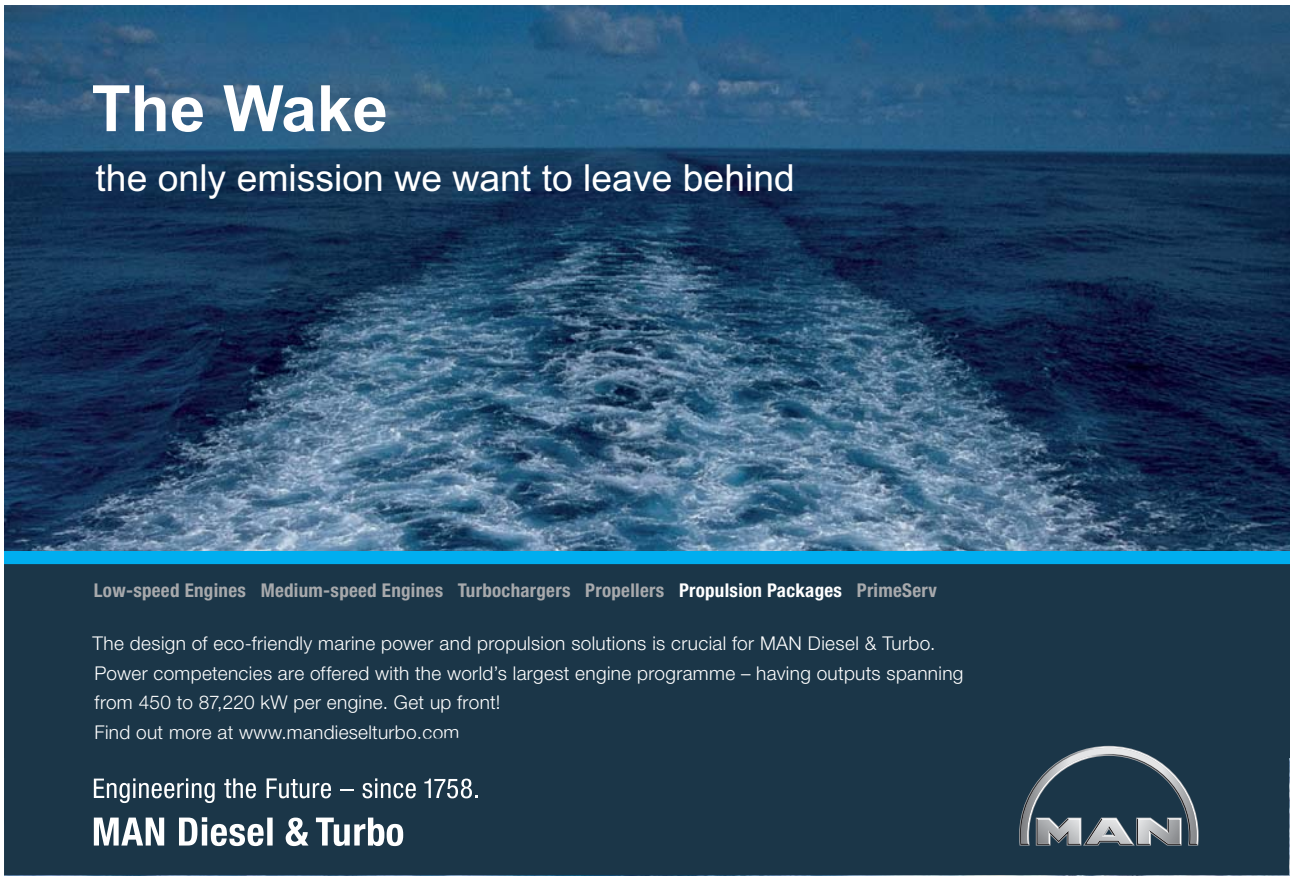
The long way to get to this number is of course to use the formula:

$$[(130.02 / 100.00) - 1] \times 100 = 30.02\%.$$

It should be noted that the return excludes dividend payments received.

5.12 Equity market efficiency

It is appropriate to end this section on the secondary equity market with a brief discussion on the concept of *equity market efficiency*.[34] This is of interest given the significant role that the equity market plays in the economy and therefore in the lives of individual investors and in the substantial portfolios of the institutions.



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Market efficiency is concerned with how well the equity market functions. However, this is not in terms of dealing efficiency, liquidity, or the spread quoted by market makers, but in terms of the degree to which share prices reflect available information about the listed companies and change to reflect new information. There are three standards (some call them measures) of market efficiency and all have been intensely researched in order to determine whether share prices do indeed reflect all information. The reason for the research was (and is) of course to make pots of money if the markets do not reflect all available information. The three standards are:

- Weak form market efficiency
- Semi-strong form market efficiency
- Strong form market efficiency.

Each standard has a different *objective* in terms of market efficiency:

- Weak form market efficiency – does the market reflect all past *market* information?
- Semi-strong form market efficiency – does the market reflect all information about *listed companies* that is available to the *public*?
- Strong form market efficiency – does the market reflect all possible information about companies, *including private information* (i.e. insider information)?

It should be apparent that the three forms are concerned with *how efficient* the equity market is. The degree of efficiency is significant because it determines the value the investor places on various *types of analysis* undertaken to select shares.

The evidence supports *weak form market efficiency* and holds that current prices reflect all historic information about *the market*. Thus stale news, price trends, trading volume data, rates of return, etc, are already incorporated in current prices, and are of no use in explaining or forecasting current and future prices. Thus, *weak form market efficiency* says that investors cannot earn more than the fair (or required) return, by using past information. This of course means that if a market is *weak form efficient* then technical analysis is of little use. However, it does suggest that superior fundamental research can produce returns that are in excess of the return that is consistent with the risk undertaken.

This theory is consistent with the *random walk hypothesis*, i.e. that *changes* in share prices follow a *random walk*, are independent of past price performance. Note the emphasis on *changes*; this is emphasised because the *levels of prices* are not determined randomly. They are efficiently determined by many factors such as earnings, interest rates, dividend (retention) policy, economic environment, etc, and any changes in these variables are rapidly reflected in share prices. However, new information is random because it is unpredictable (if it were predictable it would be incorporated in prices), and therefore prices *change* in response to new information.

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Semi-strong form market efficiency is concerned with achieving abnormal returns upon the release of *new public information*. Thus, a market is s*emi-strong form efficient* if new public information is imputed into prices immediately.

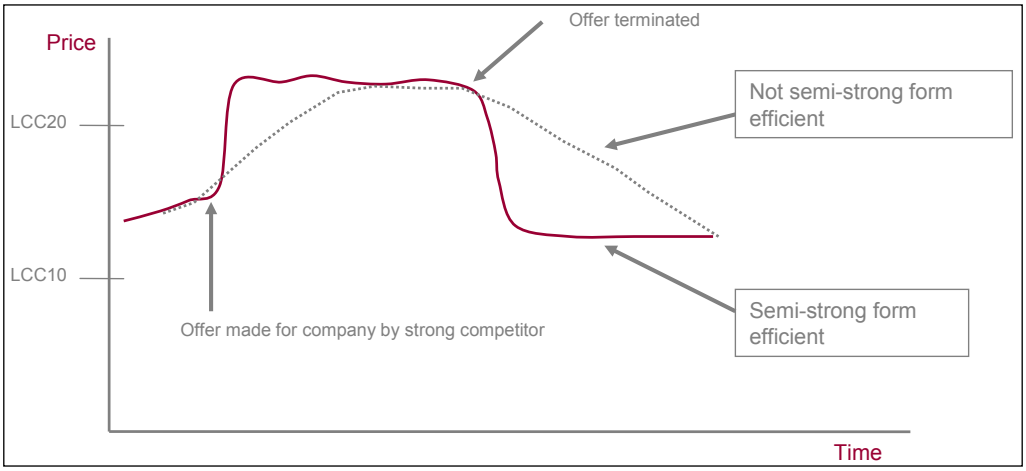

Figure 7: equity market efficiency: daily price of share ABC

The evidence suggests that this is the case. The test here is the quickness with which share prices adjust upon the release of new information about specific companies (see Figure 1). In the case of equity markets that are quote-driven, the market is s*emi-strong form efficient* if the bid/offer quotes of the market makers are adjusted immediately without any transactions being done that someone can profit from. If the market adjusts slowly to the new level, based on many transactions that bring this about, then the market is *not semi-strong form efficient.*

Thus, no person / institution can achieve superior results to the market when the market is s*emi-strong form efficient*. However, there is one exception to the contention that the market is s*emi-strong form efficient*: when someone has insider information. The possessor of this information is able to achieve return results that are superior in a market that is s*emi-strong form efficient*.

In the case of *strong form market efficiency* it is said that a market is *strong form efficient* if market prices fully reflect *publicly* announced and *private* information. This standard is difficult to test, because *inside information* is not available to the public (by definition). However, logic dictates that abnormal returns can be made on information that is not publicly available. It will be evident then that if this insider information is later made available to the public, and prices adjust immediately, it would not reflect *strong form efficiency*, but s*emi-strong form efficiency.*

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There have been cases where "insider trading" has taken place, and some perpetrators have been caught out because the relevant share price changed for "*no reason at all*". This would be the comment of observers without the information. The *reason* of course becomes apparent after the release of the information. Investigations then take place as to why the share price changed "for no reason at all", and the perpetrator is identified.

This of course means that the holder of private information is able to outperform the market, which points to the market *not* being *strong form efficient*. This is manifested in most countries having laws prohibiting this behaviour. The applicable statute in South Africa is the *Insider Trading Act of 1998*.

5.13 Summary

The secondary market is where existing equities are sold and bought, and where market prices are discovered. It is significant because it ensures that investors are not "locked in" and it reflects much information (apart from prices) such as the receptiveness of the market for new issues and their offer prices.

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There are many players in the secondary market, classified into ultimate lenders, financial intermediaries, members of the exchange and speculators / arbitrageurs. The latter are found within the first three categories. They all play a major role in the secondary market in terms of making it informationally efficient. A market is informationally efficient if it reflects all available information and this means that no one can do better than the market delivers (= a controversial but interesting theory).

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6 Valuation

6.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Explain the "balance sheet approach" to equity valuation.
2. Explain the "discounted cash flow approach" to equity valuation.
3. Explain the "relative valuation approach" to equity valuation.

6.2 Introduction

The mathematics of the equity market is concerned with the valuation of ordinary shares. Preference shares of course also trade and need to be valued. However, those with fixed maturity dates and fixed rates are valued the same way as bonds. Preference shares with floating rates are usually valued at 100%, because the rate floats in line with market rates[35]. Perpetual preference shares (which are found in many other countries) are valued as perpetual bonds are:

Price = coupon (or dividend) rate / required rate of return.

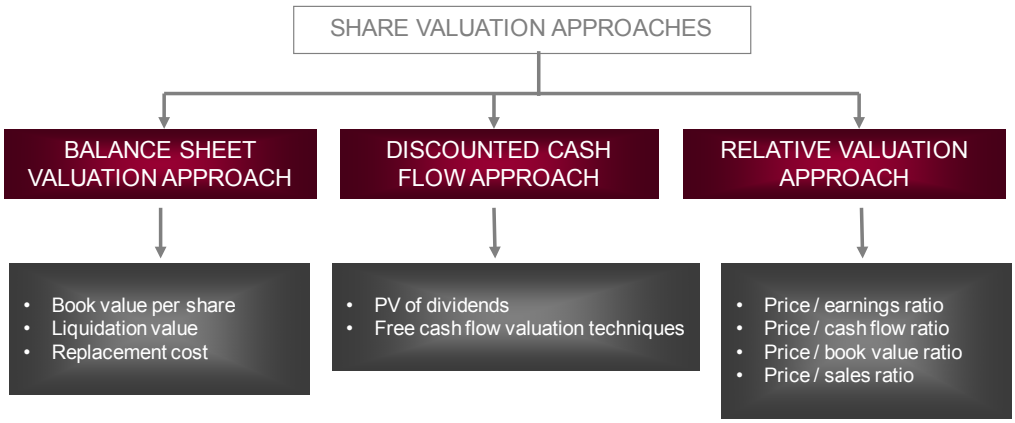

Figure 1: approaches to share valuation

In the case of the valuation of ordinary shares three approaches are generally followed.[36] These are shown in Figure 1.

We discuss each of these methods in some detail and end with a section of inflation and the valuation on equities.

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6.3 Balance sheet valuation approach

6.3.1 Introduction

There are three balance sheet valuation methods:

- Book value per share
- Liquidation value
- Replacement cost.

6.3.2 Book value per share

The book value per share of a company is also called the *net asset value per share*. This is simply calculated as follows:

$$BV_{ps} = (A - L) / NOS$$
$$= SF / NOS$$

where

A = assets
L = liabilities
SF = shareholders' funds
NOS = number of shares in issue.

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Assets		Equity and liabilities	
Stock (inventory) Bank deposits Debtors	3 563 050 1 035 092 3 216 925	Authorised share capital (5 000 000 shares of LCC1 each) Issued share capital (4 000 000 shares of LCC1 each) Distributable reserves **Total shareholders' funds** Liabilities (bank overdraft and creditors)	 4 000 000 2 564 500 **6 564 500** 1 250 567
Total assets	7 815 067	Total equity and liabilities	7 815 067

Table 1: Balance sheet of NEWCO (Pty) Limited (LCC)

In the example shown in Table 1, the NAV_{ps} of the company is:

$$\begin{aligned} BV_{ps} &= (A - L) / NOS \\ &= LCC7\ 815\ 067 - LCC1\ 259\ 567 / 4\ 000\ 000 \\ &= LCC6\ 564\ 500 / 4\ 000\ 000 \\ &= LCC1.64. \end{aligned}$$

This analysis *indicates* that each share is worth LCC1.64, that any higher market price means that the share is overvalued, and that a market price below LCC1.64 means that the share is undervalued.

It should be apparent that the book value approach is crude and is based on the balance sheet that is drawn up on the basis of certain accepted accounting rules, which may or may not value the assets and liabilities of the company at market value (an example is the valuing of certain assets at historical cost).

The questions that arise here are: *Can the share price be higher than the NAV per share, and does the NAV per share represent a "floor" price?* The answers are yes and no, respectively. As regards the first question, it is apparent that a share price is indicative of the market participants' perception of past and future cash flows (dividends), which means that if the company has performed well and is expected to perform well in future, the share price can be substantially higher than the NAV per share.

As regards the latter question, there are many examples where the share price of a company is lower that the NAV per share. This could indicate that the cash flows expected by the market are low or that the company is in trouble.

It is notable that in instances where a share price is lower than the NAV per share, this represents an opportunity for the company to *repurchase its own shares* in order to *improve the NAV per share*. This action of course amounts to a "message" from the directors of the company to the market that they are incorrect in their assessment of the company.

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Assets		Equity and liabilities	
		Authorised share capital	
Stock (inventory)	3 563 050	(5 000 000 shares of LCC1 each)	
Bank deposits	635 092	Issued share capital	
Debtors	3 216 925	(3 600 000 shares of LCC1 each)	3 600 000
		Distributable reserves	2 564 500
		Total shareholders' funds	**6 164 500**
		Liabilities (bank overdraft and creditors)	1 250 567
Total assets	7 415 067	Total equity and liabilities	7 415 067

Table 2: Balance sheet of NEWCO (Pty) Limited (LCC)

An example may be useful: If the *market price* of the share in the above example is LCC1.00, and the directors decide to buy 10% of the issued shares back (i.e. 400 000 shares for which they used bank deposits), and cancel the shares, the NAV per share of the remaining shares improves to:

$$\begin{aligned} BV_{ps} &= SF / NOS \\ &= LCC6\ 164\ 500 / 3\ 600\ 000 \\ &= LCC1.71. \end{aligned}$$

As noted, this action sends a powerful message to the market, and it is likely that the share price will improve. The actual market activity of purchasing the 400 000 shares would most likely also have pushed up the share price.

Although this valuation method is crude, it is *used to identify cheap shares*, particularly if the market price is substantially below the NAV per share, and to identify companies for the purpose of a takeover. This method of valuation is rarely used in isolation.

6.3.3 Liquidation value

This method is not foolproof because it is not easy to value assets and liabilities. Usually an austere valuation of assets and liabilities is undertaken and a proportion of the value is lopped off in order to allow for errors.

As in the case of the book value per share method, the liquidation value method is used to identify companies for takeover and/or liquidation in order to profit from the difference between market price and liquidation price. For example, if Newco (Pty) Limited is "raided" prior to the repurchase of its own shares, and all the shares are purchased at an average price of LCC1.00, the raider will profit as follows:

$$\text{Profit per share} = [(V_A - V_L) / NOS] - P_{ps}$$

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where

P_{ps}	= price paid per share
V_A	= value of assets
V_L	= value of liabilities
NOS	= number of shares in issue.

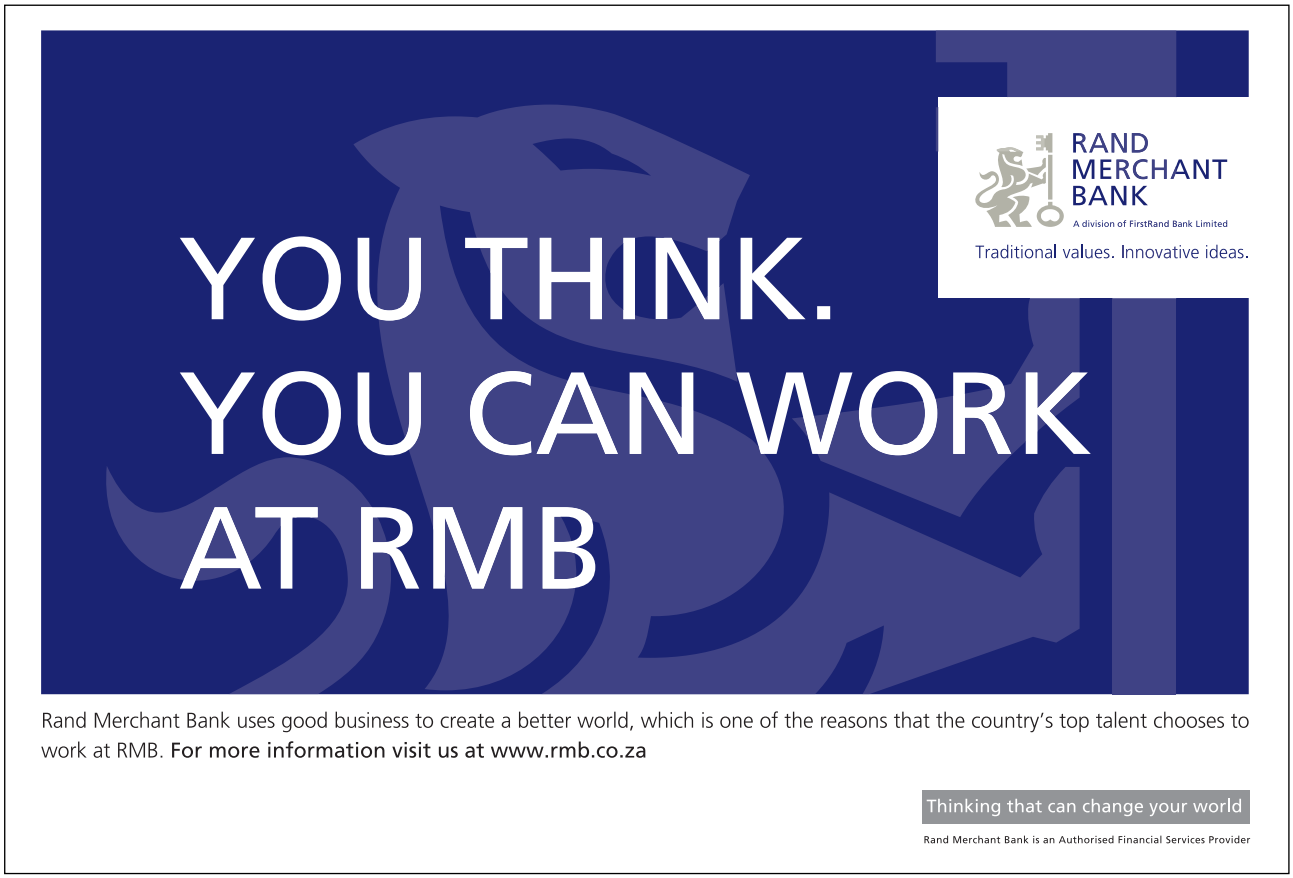
If V_A is LCC6 000 000 and V_L is LCC1 200 000, and number of shares is 4 000 000, then the profit per share made by the raider is:

$$\begin{aligned}\text{Profit per share} &= [(V_A - V_L) / \text{NOS}] - P_{ps}\\ &= [(\text{LCC6 000 000} - \text{LCC1 200 000}) / 4\,000\,000] - \text{LCC1.00}\\ &= (\text{LCC4 800 000} / 4\,000\,000) - \text{LCC1.00}\\ &= \text{LCC1.20} - \text{LCC1.00}\\ &= \text{LCC0.20.}\end{aligned}$$

As the raider bought all the shares, the total profit is LCC800 000 (4 000 000 × LCC0.20).

The alternative to this long-winded calculation is simply the NAV after liquidation (LCC4 800 000) less the mount paid by the raider for all the shares (LCC4 000 000), i.e. LCC800 000.

This method is rarely used in isolation.



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6.3.4 Replacement cost

Replacement cost amounts to the valuation of a company according to the replacement cost of its assets and liabilities. This method is premised on the notion that the market value of a company cannot be too removed (upwards) from the replacement cost of the assets and liabilities, because this will *enable competitors to duplicate the company*.

The economic logic of this approach is that if the market value of the company is substantially higher than the replacement cost of the company's assets and liabilities, many competitors will enter the relevant field of business. This will drive the market value of the firm down (lower profits and larger supply of shares of companies in this field) and increase the replacement value of the assets and liabilities (larger demand), until the market value of the companies becomes close to the replacement cost.

It is notable that James Tobin developed the concept of the *ratio of market value to replacement value* (known as **Tobin's *q***). In terms of this view, the value of q will tend toward 1 in the long-term. In the short-run, however, the ratio may differ from 1.

6.3.5 Concluding remark

The balance sheet valuation methods have a place, because they provide information on the *replacement and liquidation value* of a company. This information can be used to identify companies for takeover or raiding with the purpose of profiting from the breaking-up and sale of the assets.

However, these opportunities are rare, and analysts are mainly concerned with the value of a company *as a going concern*. They are interested in the cash flows generated by the company. For this, quantitative valuation methods are employed. These follow.

6.4 Discounted cash flow approach

6.4.1 Introduction

There are two methods to the discounted cash flow approach:[37]

- Present value of dividends.
- Free cash flow.

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6.4.2 Present value of dividends

6.4.2.1 Introduction

We know from the bond market that the plain vanilla bond has a finite life and pays a fixed rate of interest. We also know that *yield to maturity* is an average rate of return over the period of the bond. The price of the bond (= value = present value) is discounted value of the fixed coupons and the principal repayable at maturity, discounted at the yield to maturity (ytm). The formula is:

$$\text{Price} = \sum_{t=1}^{n} [cr / (1 + ytm)^t] + [1 / (1 + ytm)^n]$$

where

cr = coupon rate (cr / 2 if six-monthly)
ytm = yield to maturity (ytm / 2 if six-monthly)
n = number of periods (years × 2 if six-monthly).

This is nothing else than the classical PV-FV formula: it discounts future cash flows (coupons and principal) at the ytm to present value.

We also know that in the case of a perpetual bond, and a perpetual preference share, the formulae are:

Price (perpetual bond) = fixed coupon rate / required rate (ytm)
Price (perpetual preference share) = fixed dividend rate / required rate.

This formula (they are the same) is nothing else than the classical PV-FV formula: it discounts future cash flows (coupons / dividends) to present value.

Ordinary shares are nothing else than perpetual bonds / preference shares, but without a fixed dividend. Thus, with equities there is no finite period of investment, and therefore no face value to be repaid. Equities are permanent capital and only pay dividends.

At this stage a reminder of the perpetual bond / preference share formula is required (cf = annual cash flow = interest or dividends; rrr = required rate of return):

$$PV = [cf / (1 + rrr)^1] + [cf / (1 + rrr)^2] + \ldots [cf / (1 + rrr)^3] + \ldots \infty.$$

This simplifies to:

$$PV = cf / rrr$$

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6.4.2.2 Dividend discount model

In the case of ordinary shares, the pricing formula may be written as (D = dividend):

$$PV = [D / (1 + rrr)^1] + [D / (1 + rrr)^2] + [D / (1 + rrr)^3] + \ldots \infty$$

As in the case of perpetual preference shares, this simplifies to:

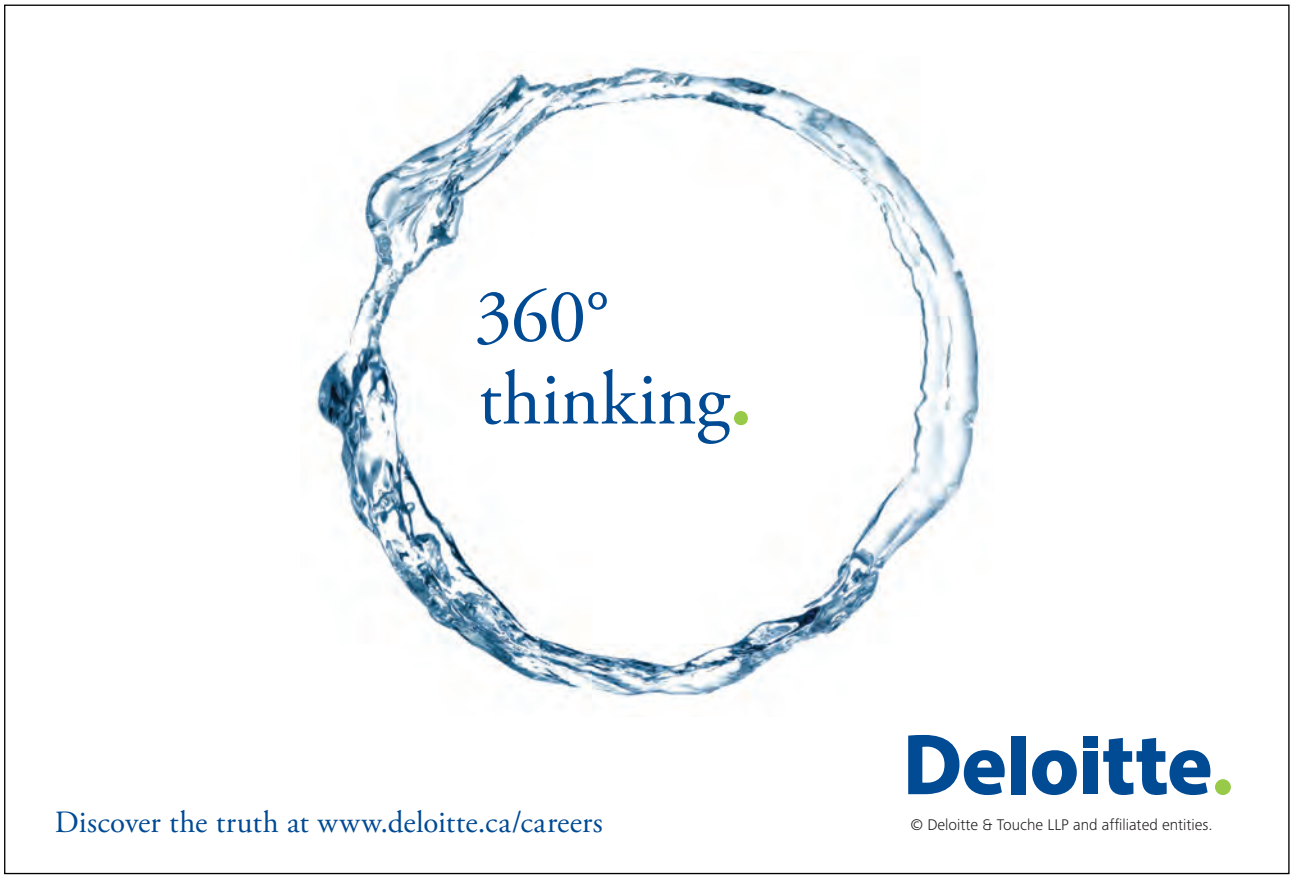
$$PV = D / rrr.$$

This model is called the **dividend discount model** (DDM), and it determines that the present value of a share is equal to the discounted value of future dividend flows (which are here assumed to be constant), at the rrr.

6.4.2.3 Constant growth dividend discount model

This model is not applicable to ordinary shares because it ignores the fact that *dividends grow over time*. In the case of growing dividends, the formula may be written as (D = dividends in year 1, year 2, year 3…etc. to infinity):

$$PV = [D_1 / (1 + rrr)^1] + [D_2 / (1 + rrr)^2] + [D_3 / (1 + rrr)^3] + \ldots \infty$$



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However, there is a *big problem* here: it is not possible to make forecasts of dividend flows deep into the future. Thus, this formula becomes a *principle* rather than a useful tool, which leads us the so-called *Gordon constant-growth DDM*.

The formula above is made practical by assuming that the immediate past dividend (which of course was observed) will grow in the future at a *constant rate of growth*. The formula now becomes:

$$PV = \{[D_0 \times (1 + D_g)] / (1 + rrr)^1\} + \{[D_0 \times (1 + D_g)^2] / (1 + rrr)^2\} + \{[D_0 \times (1 + D_g)^3] / (1 + rrr)^3\} + \ldots \infty$$

where

D_0 = past dividend
D_g = assumed growth rate in dividends.

This simplifies to:

$$PV = [D_0 \times (1 + D_g)] / (rrr - D_g)$$
$$= D_1 / (rrr - D_g).$$

If the *past* dividend of share XYZ was LCC6.0, the dividend growth rate is 8% (based on past growth rates), and the rrr = 14%, then $D_1 = D_0 \times 1.08$ = LCC6.0 × 1.08 = LCC6.48, and the present value of this share is:

$$PV = LCC6.48 / (0.14 - 0.08)$$
$$= LCC6.48 / 0.06$$
$$= LCC108.00.$$

It will be apparent that in terms of this **constant-growth DDM** (or CGDDM), the PV of the share will be higher under the following conditions:

- As the rrr falls the PV rises. Example: if the rrr = 12%, D_0 = LCC6.00, D_g = 8%, then the PV of the share is LCC162.00 [LCC6.48 / (0.12 – 0.08)].
- If the growth rate in dividends is higher, the PV rises. Example: if rrr = 14%, D_0 = LCC6.00, D_g = 9.5%, the PV of the share is LCC146.00 [LCC6.57 / (0.14 – 0.095)].

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6.4.2.4 Multi-stage growth model

Constancy in the growth in dividends is applicable to mature companies (and the valuation model can be called the *infinite period* CGDDM), but not to young companies whose dividend growth is higher in the early stages of operations and constant later. The valuation model in this case is called a multi-stage growth model. We assume the growth rates in dividends as indicated in Table 3 [we also assume the current dividend is LCC2 (D_0) and the rrr = 14%][38].

The PV of the company's share is LCC94.36. It will be evident that estimating the dividend growth rate and how long each phase will last is fraught with problems.

Year	Dividend growth rate	Dividend (LCC)	Discount factor (14%)	PV	PV formula
current (D_0)		2.00			
1	25%	2.50	0.8772	2.193	(2.0 x 1.25) / 1.14
2	25%	3.12	0.7695	2.401	$(2.0 \times 1.25^2) / 1.14^2$
3	25%	3.91	0.6750	2.639	$(2.0 \times 1.25^3) / 1.14^3$
4	20%	4.69	0.5921	2.777	$(2.0 \times 1.25^3 \times 1.2) / 1.14^4$
5	20%	5.63	0.5194	2.924	$(2.0 \times 1.25^3 \times 1.2^2) / 1.14^5$
6	20%	6.76	0.4556	3.080	$(2.0 \times 1.25^3 \times 1.2^3) / 1.14^6$
7	15%	7.77	0.3996	3.105	$(2.0 \times 1.25^3 \times 1.2^3 \times 1.15) / 1.14^7$
8	15%	8.94	0.3506	3.134	$(2.0 \times 1.25^3 \times 1.2^3 \times 1.15^2) / 1.14^8$
9	15%	10.28	0.3075**	3.161	$(2.0 \times 1.25^3 \times 1.2^3 \times 1.15^3) / 1.14^9$
10 +	9% (constant)	11.21			
		LCC224.20*	0.3075**	68.941	$[(2.0 \times 1.25^3 \times 1.2^3 \times 1.15^3 \times 1.09) / (0.14 - 0.09)]1.14^9$
				LCC94.355	

* Value of dividend stream for year 10 and all future dividends [i.e. LCC11.21 / (0.14 – 0.09) = LCC224.20].
** Discount factor = 9th year factor because the valuation of the remaining stream is made at the end of year 9 to reflect the dividend in year10 and all future dividends.

Table 3: Assumed dividend growth rates and computation of PV of share

6.4.2.5 Required rate of return

It is now necessary to talk about the rrr. The rrr can be any number desired, but it must be above the risk-free rate, because this is the lowest rate that can be earned without assuming any risk. Thus, the rrr is made up of two parts:

rrr = rfr + rp (risk premium).

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The Capital Asset Pricing Model (CAPM) provides us with a neat explanation of risk. According to the CAPM, the risk premium is made up of two parts:

- The additional return that investing in shares offers above the rfr.
- The volatility of the particular share relative to the market as a whole, i.e. the beta (β). If a share has a beta of 2, this means that the share has a tendency to rise twice as much as the market over the chosen period of time, i.e. when the chosen index rises by z percent over a period, the share has a tendency to rise by 2 × z percent.

The additional return is the extent to which the return on the market (mr) exceeds the rfr (mr – rfr). Thus the rrr is:

$$rrr = rfr + (mr - rfr)\beta.$$

The CAPM thus states that the rrr depends on the risk-free rate, the risk premium associated with investing in shares, and the risk associated with the specific share.

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How the model is used should be apparent. An example will be useful. If the rfr = 8.0%, the market is expected to rise 14%, and the security has a beta of 1.7, the rrr is equal to:

$$\begin{aligned} rrr &= rfr + (mr - rfr)\beta \\ &= 8.0 + (14.0 - 8.0)1.7 \\ &= 8.0 + (6.0)1.7 \\ &= 8.0 + 10.2 \\ &= 18.2\%. \end{aligned}$$

Assuming the past dividend of share XYZ = LCC6.0, the Dg = 8%, its value is:

$$\begin{aligned} PV &= (D_0 \times (1 + D_g)) / (rrr - D_g) \\ &= (LCC6 \times (1.08)) / (0.182 - 0.08) \\ &= LCC6.48 / 0.102 \\ &= LCC63.53. \end{aligned}$$

6.3 Free cash flow[39]

The free cash flow (FCF) approach to equity valuation recognises that fixed and working capital expenditure is required in order to grow the company and generate revenue and that such expenditure must be subtracted from operating income (after tax) in order to determine what cash is freely available to the company.

The FCF approach to valuing a company has two steps:

1. Determine the operational value of the company
2. Determine the value of the company to shareholders.

Step 1: operational value

This valuation technique discounts the company's free cash flow (FCF) by the company's weighted average cost of capital (WACC). Fundamentally the approach is to establish the cash flows available to the suppliers of capital (in the form of debt and equity) to the company.

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The FCF of a company is determined as follows:

Turnover
Less: operating expenses (including depreciation)
= earnings before interest, tax & amortisation (EBITA)
Less: cash taxes on EBITA
= net operating profit after tax (NOPAT)
Less: increase in fixed assets
Less: increase in working capital
Less: cash investment in goodwill
= **FREE CASH FLOW (FCF)**

The company's PV (or CV):

$$PV = \sum_{t=1}^{n} FCF_t / (1+ WACC)^t$$

where:

PV	= present value of the company
n	= number of periods (assumed to be infinite)
FCF_t	= free cash flow of company in period t
WACC	= weighted average cost of capital of company.

In determining WACC, the cost of equity and the after tax cost of debt are weighted and added together.

If we assume a constant growth rate (g) in FCF over the horizon period, our formula resembles the Gordon CGDDM:

$$PV = FCF \times (1 + g) / (WACC - g)$$

Step 2: shareholder value

To arrive at a share value using the free cash flow approach, items that affect the value of the company but which are not included in the operational value must be considered:

PV of FREE CASH FLOW (as derived above)
Plus: excess cash & marketable securities
Less: debt
Less: minorities
= FCF (shareholder or equity value)
Divide by number of shares issued
= FCF per share.

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Excess cash and marketable securities include cash not used for operational purposes, i.e. investments and cash that exclusively earn interest.

6.5 Relative valuation approach

6.5.1 Introduction

Analysts make use of four relative valuation techniques:

- Price / earnings ratio
- Price / cash flow ratio
- Price / book value ratio
- Price / sales ratio.

6.5.2 Price / earnings ratio

The old favourite way of valuing companies is the price / earnings ratio (P/E ratio). It is also called the price / earnings multiple (m). The m is simply:

$$m = P_0 / EPS_P$$

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where

P_0 = price of the share at time 0, i.e. now
EPS_P = earnings per share after tax as per *past* audited statements.

If the price of a share now is LCC125 and past audited EPS is LCC13.0 per share, then:

$$m = \text{LCC125} / \text{LCC13}$$
$$= 9.62.$$

This says that the relevant share is trading at an earnings multiple of 9.62 and the implication is that the lower the multiple the cheaper the share. It will be apparent that this is the *historical* multiple. More usually, analysts predict earnings per share in the next year (EPS_f). Thus

$$m = P_0 / EPS_f.$$

This simple ratio translates to:

$$P_0 = (m)(EPS_f).$$

This says that the price of the share now is equal to the product of the next (i.e. estimated) EPS number and some multiple. If an *acceptable multiple* is 10 and the expected EPS is LCC13.0, then the price should be (i.e. the value of the share is):

$$P_0 = (m)(EPS_f)$$
$$= (10)(\text{LCC13.0})$$
$$= \text{LCC130.00}.$$

If the price of the share now is say LCC120, it is regarded as being undervalued, and if it is LCC140.00 it is overvalued. The problem with this measure is *what is the correct multiple*? Usually *analysts compare multiples with the average for the industry*, and keep an eye on the averages over time.

It is appropriate to point out the links between the Gordon CGDDM and the P/E ratio. The CGDDM (we use P instead of PV on the left of the equation):

$$P = [D_0 \times (1 + D_g)] / (rrr - D_g)$$
$$= D_1 / (rrr - D_g).$$

If we divide the equation by EPS_f we get:

$$P/EPS_f = (D_1 / EPS_f) / (rrr - D_g).$$

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Thus the P/E ratio is determined by the dividend payout ratio (D_1 / EPS_f), the rrr and the expected growth rate in dividends (D_g).

The major weakness of the P/E ratio was pointed out above: *what is the right level?* However, it has a major use: it is *useful for valuing companies that are not paying dividends*, such as younger companies that are conserving cash for purposes of growth.

Thus the company's value, according to this valuation method, is 13 times its earnings.

In conclusion, the P/E ratio is a reflection of the market's level of optimism regarding the growth prospects of the company. The higher the P/E is, the more optimistic is the view. The *analyst has to decide where s/he stands in relation to the market consensus as reflected in the ratio*. If s/he is less optimistic than the market (i.e. demands a lower P/E ratio), s/he will recommend a "sell".

The rational analyst will *not* rely solely on a company's P/E ratio to value a company. S/he will most likely view a company's P/E ratio now with the past history of the company, and with other valuation tools.

6.5.3 Price / cash flow ratio

This ratio (P/CF) is used by some analysts because of concerns about the manipulation of EPS by some companies. It is more difficult to manipulate cash flows. The formula is:

$$P/CF = P / CF_f$$

where

P = price of the share now
CF_f = cash flow per share expected in the next accounting period.

The cash flow used here is EBITDA (earnings before interest, tax, depreciation and amortisation).

6.5.4 Price / book value ratio

This ratio is the *price per share* to the *book value per share* ratio (P/BV) and it is computed as follows:

$$P/BV = P / BV_f$$

where

P = price of the share now
BV_f = expected book value per share at the end of the financial year.

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Book value is the sum of inventories, additional capital, and retained earnings. This measure is of interest to analysts in that the price per share is compared with the per-share book value in the same way as the P/E ratio. A low ratio suggests that the share is undervalued, and a high ratio suggest the opposite. What the correct ratio is is *the rub*.

As in the case of the P/E ratio, this ratio is used largely as a measure of relative value.

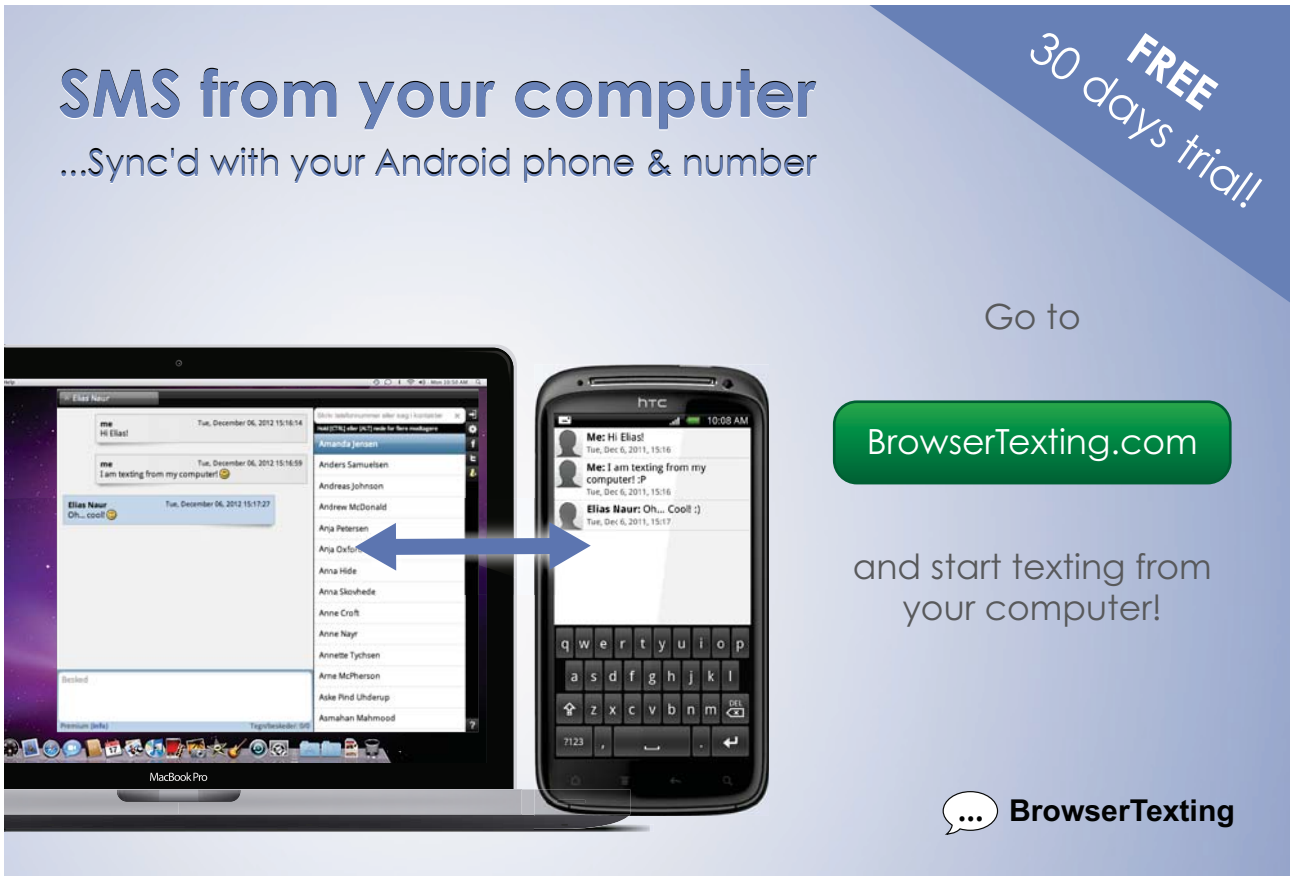
6.5.5 Price / sales ratio

The price / sales ratio (P/S) is computed as:

$$P/S = P / S_f$$

where

P = price of share now
S_f = expected sales per share.



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A low ratio indicates a low valuation and a high one the opposite. This ratio is considered useful for the following reasons:

- Strong growth in sales is considered is a requirement for a growth company: earnings are ultimately related to sales growth.
- Sales manipulation is difficult to achieve; it is therefore a credible indicator.
- It measures the value of companies that are operating at a loss (whereas P/E cannot).

P/S ratios vary substantively between industries; therefore relative valuation analysis is confined to companies in the same industry.

6.6 Equity valuation, inflation and interest rates

Many other factors play a role in the valuation of companies. The most pertinent of these are inflation and interest rates.

Periods of low but rising inflation can bring about a rise in nominal GDE/GDP and this may be associated with a rise in company earnings and expected dividend payments and the growth rate in dividends (D_1 and D_g). Thus, in terms of the constant growth DDM, the value of companies will rise, and share prices will rise to reflect this.

However, the role played by interest rates in an inflation environment is crucial. Rising inflation in well-managed economies is accompanied by rising interest rates. Thus one of the components of rrr will rise: the risk-free rate. An example is required here.

The constant-growth DDM formula will be recalled:

$$PV = D_1 / (rrr - D_g).$$

And the earlier example will be remembered:

$$\begin{aligned} PV &= D_1 / (rrr - D_g) \\ &= LCC6.48 / (0.14 - 0.08) \\ &= LCC6.48 / 0.06 \\ &= LCC108.00. \end{aligned}$$

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If the expected dividend (D_1) increases by the inflation rate of 8% to LCC7 (LCC6.48 x 1.08), if the risk free rate component of the rrr increases the rrr to say 14.5%, and if the dividend growth rate increases from 8% to 10%, the numbers change as follows:

$$\begin{aligned} PV &= LCC7.00 / (0.145 - 0.10) \\ &= LCC7.00 / 0.045 \\ &= LCC155.56. \end{aligned}$$

This usually happens in an inflationary climate. In real terms, however, there may not be a change in the numbers.

However, it must be kept in mind that under conditions of inflation, the economy may perform well in the short term, and it may be followed by a period of lower income and profits. An expectation of this occurring may prompt investors to lower their sights in respect of the expected growth rate in dividends (D_g) and to increase the risk premium part of the rrr.

Another scenario that may be envisaged is where inflation rises and the monetary authorities decide to keep rates unchanged for a long period. This may lead investors to expect high inflation in future. This scenario may prompt investors to increase the risk component of rrr substantially and to lower the growth rate in dividends.

6.7 Summary

Preference shares are valued as bonds are (because bonds have a fixed return and a fixed maturity date) (note: there are exceptions). Ordinary shares do not deliver a fixed return and do not have a maturity date. Therefore they cannot be valued easily. Other valuation techniques have been developed to value equity: (1) the "balance sheet approach" to equity valuation, (2) the "discounted cash flow approach" to equity valuation, (3) the "relative valuation approach" to equity valuation.

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7 Endnotes

1. An example of an exchange-driven market is the South African bond market – the exchange is called Bond Exchange of South Africa (BESA).
2. This instrument has different meanings in different countries. In certain countries warrants are retail options, while in others they are options to take up further shares.
3. LCC is a currency code for a fictitious country: Local Country [Currency].
4. Section 76 of the (South African) Companies Act; "Premiums received on issue of shares to be share capital, and limitation on application thereof".
5. The (South African) Companies Act: "Proceeds of issue of shares of no par value to be stated capital".
6. This type of demarcation in voting rights was popular with Black Economic Empowerment (BEE) companies in South Africa in the late nineties and early in the new millennium, but the main shareholders of listed companies are not in favour of this arrangement
7. Called Secondary Tax on Companies (STC) in South Africa.
8. South Africa.
9. For example, in 2004 South African bank ABSA issued convertible preference shares to a BEE consortium (BEEC). The terms of the issue were that the BEEC could convert the preference shares to ordinary shares over a two-year period, starting three years after the issue date, and the price was determined upfront. These shares were also endowed with full voting rights.
10. See www.warrants.co.za.
11. Note here that we regard equity as *borrowing*, which it most certainly is in the case of preference shares. Equity acquired by the issue of ordinary shares may be regarded as *perpetual borrowing* (it has a bond equivalent in the form of the *perpetual bond*).
12. Based on the data available for South Africa, which applies to most markets.
13. Capital Asst Pricing Model and [Gordon] Constant Growth Dividend Discount Model.
14. In the first world economies; this is not necessarily true in the undeveloped world.
15. This section draws on many of the publications mentioned but particularly Pilbeam (1998).
16. See Mayo (2003: 163–16).
17. There may be a few exceptions.
18. This section draws substantially on: www.jse.co.za. A number of conversations were also conducted, and emails swapped, with JSE personnel. They were most helpful and are thanked for their benevolent spirit.
19. These are the requirements for listing on the South African exchange, but they will be similar in many other countries.
20. www.jse.co.za
21. www.jse.co.za
22. See www.jse.co.za
23. Listings Department of the JSE.
24. This section draws on www.jse.co.za, other sources mentioned in the bibliography and personal experience, but largely on the first-mentioned. These apply the South African exchange, but they will be similar in many other countries.

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25. This section draws on www.jse.co.za, other sources mentioned in the bibliography and personal experience, but largely on the first-mentioned. These apply to the South African exchange, but they will be similar in many other countries
26. These apply to the South African exchange, but they will be similar in many other countries
27. The JSE in South Africa.
28. These apply to the South African exchange, but they will be similar in many other countries
29. Recall that the largest investors are the retirement funds, the insurers and the unit trusts (and in some countries exchange traded funds – ETFs).
30. In South Africa a few JSE members do so in certain of the larger market capitalisation shares.
31. Information mainly from the JSE (various forms) (2002).
32. Most exchanges have a dealing / accounting system internally and for members. We call this system the Broker-dealer Accounting (BDA) system.
33. This differs from country to country.
34. This draws on Mayo (2003, pp. 271–283) and Reilly and Brown (2003, pp. 176–181).
35. Not entirely so, but the technique will not be discussed here because this is an introductory text.
36. There are numerous excellent works on equity valuation. They are mentioned in the bibliography. Here we highlight: Bodie, Kane, and Marcus (1999); Reilly and Brown (2003); and Mayo (2003).
37. This draws substantially on Reilly and Brown (2003: 377–393) and Mayo (2003: 250–271).
38. The example is adapted from Reilly and Norton (2003: 536–537).
39. This section is attributed to Jan Faure and David Southey of stockbroker Independent Securities (Pty) Limited. This firm specialises in research of this nature.