



## Study Material

# *For Capital Market Examination-I (CME-I) of General Securities Qualifications Certificate*

## *PART 2: Securities Operations*

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## General Securities Qualification Examination Preparation Course

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A Learning Map which contains the full syllabus appears at the end of this workbook. Please note that the examination is based upon the syllabus.

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## SYLLABUS LEARNING MAP

The educational material presented in this manual covers wide area of knowledge deemed necessary for those individuals holding positions relating to investment and capital market in Saudi Arabia. The material covers areas related to capital markets such as investment tools and investment, financial statements and analysis, introductory economic framework, corporate finance and mutual funds. However, the depth of required knowledge and comprehension is not the same for all topics covered in this manual. Thus, in order to more clearly define the topical knowledge required by a candidate, learning objectives have been specified for all major topics. The levels of coverage for the treatment of major topics of the contents specification outlines have been identified and defined. The cognitive skills that a successful candidate should possess and that should be tested on the examination can be defined as follows:

**Knowledge:** ability to remember previously learned material such as specific facts, criteria, techniques, principles, and procedures (instructions such as, identify, defines, list falls under this category).

**Comprehension:** ability to grasp the meaning of the learned material which can be demonstrated by (classifying, explaining, distinguishing) between things and materials.

**Application:** Ability to use previously learned material in new and concrete situations (i.e. demonstrate, predict, solve, modify, relate).

**Analysis:** Ability to break down material into the component parts so that its organizational structure can be understood; ability to recognize casual relationships, discriminate between behaviors, and identify elements that are relevant to the validation of a judgment(i.e. differential, estimate, order).

**The Examination is a multiple choice questions which usually come under different formats. The most prominent ones are outlined below:**

**i) Closed-Stem**

The stem (the part that poses the question) is a complete sentence, and thus concludes with a question mark. The options (answer alternatives) may be complete or incomplete sentences.

**Example** Bonds can be described as which of the following?

- (A) Long term securities
- (B) Short term securities
- (C) Can be issued only by governments
- (D) Always trade between banks

**ii) Open-Stem (Sentence Completion)**

The stem is an incomplete statement, and the options represent conclusions to the sentence.

**Example** Dividends are distribution of earnings to

- (A) Existing Shareholders of the company only
- (B) The company shareholders, suppliers and creditors
- (C) Shareholders, management and board of directors of the company
- (D) Owners, employees and government concerned authorities.

**iii) (Most/Least/Best)**

This relative form of questions requires selecting a choice that is either better or worse than the others. The basis on which the evaluation is to be made is stated in the stem.

**Example** Which of the following BEST describes an aspect of common stock issued by a company?

- (A) An ownership claim issued to contributors of capital
- (B) An ownership claim issued to contributors of all funds to the company.
- (C) Entitles its holder to regular amount of dividends at the end of each year.
- (D) Has priority claim over all other securities issued by a company.

**iv) Except or Not**

The "EXCEPT" case usually is used when the task is to select the response option that is an exception to the principle or rule stated in the stem.

**Example** Companies are concerned about the cost of extending credit for all the following reasons EXCEPT

- (A) The time delay in receiving payments
- (B) The expense of the extra goods that must be produced or bought
- (C) The risk of non-payment
- (D) The administrative costs associated with extending credit

**v) Complex Multiple-Choice ("Roman Numeral" Format)**

This type of question is used when more than one of the option answers may be a correct response.

**Example** Which TWO of the following instruments are traded in a money market?

- I. Bankers' acceptances
  - II. Treasury bills
  - III. Treasury notes.
  - IV. Eurobonds
- (A) I , II and III
  - (B) I, II, and IV
  - (C) II, III and IV
  - (D) II and IV

**vi) Complex Multiple – Choice (“Arabic Numeral” Format)**

**Example** (1) Commercial papers are short – term securities (2) Common stocks pay fixed interest income to holders:

- (A) (1) is correct (2) is incorrect
- (B) (1) is incorrect (2) is correct
- (C) Both (1) & (2) are correct
- (D) Both (1) & (2) are incorrect

## LEARNING STRUCTURE: Part 2: Operations

1 *Financial Market: Organization & Management*

2 *Financial Market Indicators*

3 *Investment Instrument & Securities*

4 *Economic Framework*

5 *Financial Statement: Basics*

6 *Financial Statement Analysis*

7 *Corporate Actions*

8 *Quantitative Foundation of Investment Analysis*

9 *Asset Valuation: Equity Investments*

10 *Asset Valuation: Debt Instruments*

11 *Derivatives*

12 *Foundations of Investment Decision Making*

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14 *Shariah – Compliant Investment Tools*

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16 *Fundamentals of Market Compliance*

# I Financial Markets: Organization and Management

## Introduction

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### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter provides a broad overview of the purpose of financial markets, the financial assets that are traded therein, and some of the characteristics of well-functioning markets.

## 1.1 ORGANIZATION AND FUNCTIONING OF SECURITIES MARKETS

### 1.1.1 THE ROLE AND OBJECTIVES OF THE FINANCIAL MARKET

**Learning Objective 1.1.1** – *Understand* the role played and the objectives of the financial markets in the functioning of the economy

A productive economy requires firms to produce goods and services for consumption, and these firms need resources. It is the financial market that links the resource needs of these firms with the people willing to provide the necessary resources: in the form of investments.

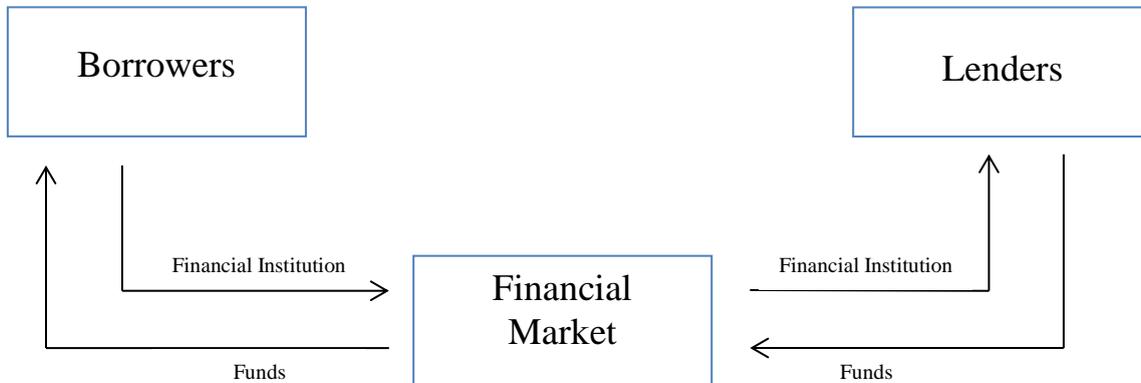
The financial system exists to facilitate the design, sale and exchange of funds and financial investments. This exchange system takes one of two forms: direct and indirect. In direct exchange (financing) system, borrowers (issuers) sell securities directly to lenders (buyers). The borrowers include central governments, local governments, and corporations. Lenders on the other hand, include individuals, financial and non-financial institutions and other governments.

In indirect exchange (financing) systems, financial institutions such as banks facilitate the transfer of funds between borrowers and lenders, by borrowing from the lenders and then providing the funds to the ultimate borrowers. Such financial institutions are called intermediaries and they include banks, insurance companies and mutual funds.

It should be noticed that financial system is linked strongly to the economic system. The role of the financial system in this respect is to facilitate production, employment and consumption. These linkages can be represented graphically as follows:

## The Funds Indirect Flow Process

Fig. 1 – A



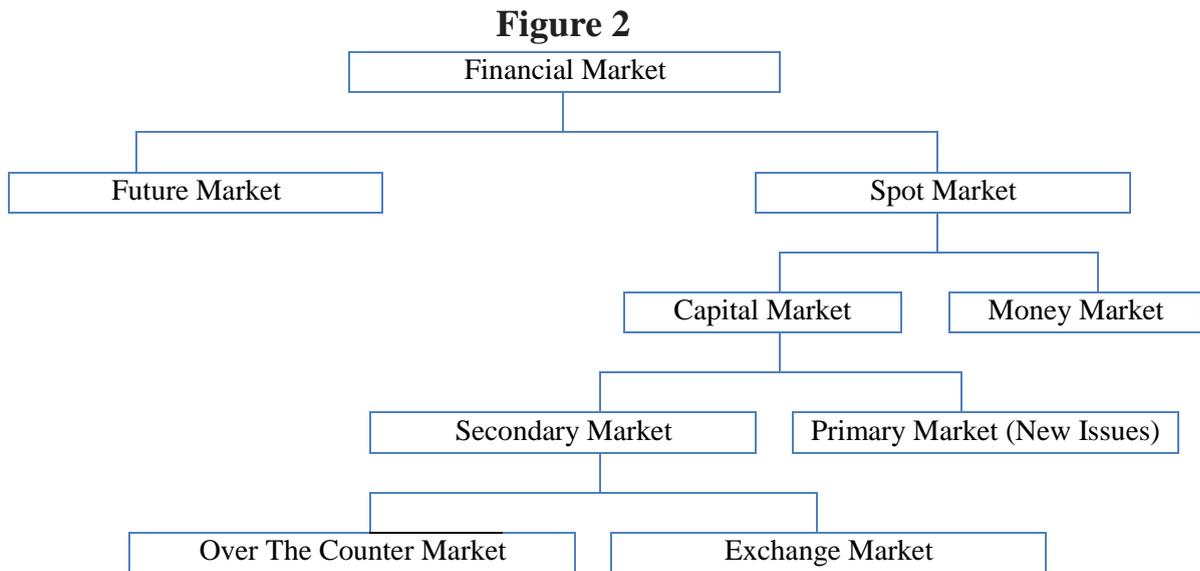
## The Funds Direct Flow Process



Fig. 1 – B

Broadly defined an investment is the current commitment of money or other resources in the expectation of future benefits. An investment could be a financial asset or a real asset. Financial assets, such as shares and bonds, play the vital role of linking investors with firms needing resources to enable the proper functioning of the economy. Real assets, on the other hand, are the assets (eg, property, plant & equipment) that are purchased by firms to actually produce goods and services for consumers. As well as linking firms with investors, the financial markets also play an important part in the valuation and exchange of financial and real assets.

The financial market can be schematically represented by the following:



The following sections will describe the individual segments in more details.

## 1. 1. 2 THE SPOT AND THE FUTURES MARKETS

**Learning Objective 1.1.2** – *Understand* the spot market and the significance of the futures market in the financial market – place

The spot market is the market in which commodities or currencies are sold for cash and delivered immediately. It is also called actual market or cash market.

The futures market, on the other hand, is the exchange where futures contracts and options on futures contracts are traded. Exchanges may trade commodities, financial derivatives, or a combination of the two. Examples of future exchanges include, Chicago Board of Trade (CBOT) and Chicago Mercantile exchange (CME). In the following sections we explain the spot market components, while the futures market operations will be explained in more detail later in chapter 11 on derivatives..

# 1.2 THE SPOT MARKET

As we outlined above, the spot market is the market in which goods are sold for cash and delivered immediately. It comprises both the money market and the capital market

## 1.2.1 THE MONEY MARKET

**Learning Objective 1.2.1** – *Understand* the significance of the money market as part of the spot market

The money market is that segment of the financial market in which short term financial assets (securities with less than one year to maturity such as government treasury bills, bank certificates of deposits, etc.) are traded. Most trades in this market is in large sizes, generally of one million dollars (in the US) or more, and therefore outside the scope of small to medium investors. Individuals, however, can participate in this market through money market mutual funds. Market makers such as large commercial banks, brokerage firms, and money market dealers facilitate trading of securities in the money market. Brokers primarily act as intermediaries by bringing together potential buyers and sellers and charge a commission for their services. Dealers on the other hand have an active positions in the securities that they deal in, by standing ready to buy (at the bid price) and to sell (at the ask price) depending on the needs of the client.

Some of the more important money market securities are:

- Treasury Bills (TBS).
- Certificates of Deposits (CDs).
- Commercial Paper.
- Bankers' Acceptances.
- Repurchase Agreements (Repos).

## 1.2.2 THE CAPITAL MARKET

**Learning Objective 1.2.2** – *Understand* the significance of the capital market as part of the spot market:

- Primary market for new issues
- Secondary market for trading securities
- Functionality and advantages of the TADAWUL system

## INTRODUCTION

The capital market is that segment of the market in which long term financial assets (securities with more than one year to maturity such as government and corporate bonds, stocks, etc.) are traded. The capital markets can be subdivided into two: The primary market and the secondary market.

## THE PRIMARY MARKET

The primary market is that part of the market in which issue of new securities is carried out, often referred to as the new issues market. In the primary market, firms and other organizations raise the funds they need by issuing (selling) long-term securities such as stocks and bonds to potential investors. However, the issuance and marketing of securities is a specialized task commonly undertaken by special financial institutions called investment banks. Examples of some well-known investment banks are, Goldman Sachs, Merrill Lynch, and Credit Suisse First Boston.

The investment bank is simply an intermediary between prospective investors in a security, and the issuing unit. The issue of new securities by the investment bank can either be on a 'firm commitment' basis in which case the bank guarantees the sale of the securities, or on a 'best efforts' basis, where unsold securities are returned to the issuing company.

In order for the investment bank to carry out its role properly, it has to address four functions:

- (1) The first function is an advisory function, which entails providing advice to its clients regarding the size and pricing of the issue, its proper timing, and availability of other financing alternatives.
- (2) The administrative function is the actual process of issuing the security and its registration. This involves satisfying various legal and regulatory requirements set down by the stock market administrator, and Securities and Exchange Commission (SEC) in the US, or Capital Market Authority (CMA) in Saudi Arabia.
- (3) The underwriting function, where the investment bank purchases the securities from the issuing firm and then re-sells them to the public. In a firm commitment arrangement, the investment bank pays in advance the total value of the quantity it underwrites to the security issuer. Other alternatives to this firm commitment exist where the investment bank's role changes. In the case of the best-efforts alternative, the investment banker agrees to help the issuer sell the issue to the public for an agreed-upon commission, and the unsold securities are returned to the issuing firm.
- (4) The distribution function, which is the investment bank's effort in the actual marketing and distribution of the issue to the public.

In most Arab countries, the investment bank's role is fulfilled by commercial banks. The commercial bank role as an underwriter is generally limited to the best-effort alternative, where there is no commitment on the part of the commercial bank to sell all or part of the issue. Recently, however, there has been a move towards the creation of investment banking entities in some Arab countries, including Saudi Arabia.

## THE SECONDARY MARKET

The secondary market is where the purchase and sale of already-issued securities takes place among investors. These transactions do not change the total amount of securities outstanding; it simply transfers ownership from one investor to another.

## THE SAUDI MARKET

Secondary trading of stocks in Saudi Arabia is done through an electronic network that links Authorized persons (security brokers) to a central trading computer unit (CTU). The electronic network and the supporting infrastructure is referred to as the TADAWUL System. TADAWUL is capable of straight through processing which includes, order entry and matching, transfer of ownership, and provides up to minute data on prices, trading volume and company specific information.

# 1.3 INVESTORS ORDERS

**Learning Objective 1.3** – Know the types of orders available to the investor, their uses, advantages and disadvantages

## 1.3.1 INTRODUCTION

The type of order that an investor places through his broker can vary with respect to size, timing, price, and method of execution.

Customers can either place a buy order or a sell order with his\her broker. The number of shares in an order is generally 100 shares or multiples of 100 and is called a round lot order. Orders to buy or sell less than 100 shares are called odd lot orders. Odd lot orders incur a higher transaction cost for two reasons; first, the commission per security in odd lot orders exceeds that for round lot orders. Second, an odd lot differential is usually added (or subtracted) in the case of buying (or selling) odd lot shares.

## 1.3.2 TYPES OF ORDERS

For a broker to execute a client's order effectively he must receive specific and clear instructions. These instructions are conveyed in the form of different types of orders.

### Market Order

Market order is the easiest type of order a customer can place. Under a market order, an investor asks the broker to execute the required transaction as quickly as possible, and at the best price available in the market, lowest price in the case of a buy (i.e. at the lowest ask price) and the highest price in the case of a sell (i.e. at the highest bid price). Because the order specifies only the quantity and not the price, the deal is usually executed within a few minutes.

## **Limit order**

In case of limit orders the investor specifies both the quantity and the price at which he is willing to buy or sell a security. Thus, the broker does nothing but waits to seize the opportunity when the market price of the stock reaches or falls below the specified price in the case of a limit buy order. Alternately in the case of a limit sell order waits for the price to reach or exceed the limit sell price. Limit orders may or may not be executed immediately. Usually the investor will specify the period of time for which the limit order is to be kept alive. A day limit order is kept active through the trading day, but will be cancelled if not executed by the end of the trading day.

## **Fill or Kill Order**

A 'fill or kill' order is a type of limit order. In a 'fill or kill' limit order the investor is requesting a limit order to be withdrawn if it cannot be executed immediately.

## **Stop loss Order**

Stop loss orders are similar to the limit order described above, except that the trade is not to be executed unless the stock hits a particular price. Unlike the limit order however, a stop loss sell is executed when the stock price hits or declines below the particular price, and a stop loss buy is executed when the stock price hits or exceeds the particular price. As the name suggests these orders are intended to limit the loss to the investor. Consider an investor who has purchased a stock for SR100 and is concerned that the price may decline in the future. By placing a stop loss sell order at SR95, for example, the investor can limit his loss to SR5 per stock in the event the stock price begins to decline. This, however, may not be guaranteed. A stop order becomes a market order once the stop price is reached, sometimes prices can fall so rapidly that the broker may be unable to execute the sell at SR95 and will be obliged to sell at a price below SR95.

## **Stop-limit Order**

The stop-limit order tackles the uncertainty about the price at which the trade will be executed in a stop order by combining the features of a stop order with a limit orders. For example, if an investor has 1,000 shares that were bought at SR 50 each, and fears a sudden decline in price, he can issue a stop-limit order at a price of SR 49 stop, SR 47 limit, This means that the broker should start the selling process when the price drops to SR 49 or less, but may not sell for less than SR47.

# **1.4 MARGIN TRANSACTIONS**

When an investor's own money is not enough to buy a security and the investor wants to add to his/her portfolios the market helps by enabling him/her buying the security on margin. Similarly when an investor desires to sell a security he does not have, he/she can borrow the security from the broker/dealer and sell it short. The following sections briefly discuss the two types.

## 1.4 MARGIN PURCHASE

**Learning Objective 1.4** – Understand the characteristics of a margin purchase

Note: This learning objective may be tested by using simple calculations

In a margin purchase the investor borrows part of the purchase price from the broker. The broker, in turn, borrows the amount from a bank for an interest rate which is normally termed the 'call money rate' and is usually 1% in excess of discount rate on US treasury bills or its equivalent in other countries. All securities purchased on margin must be maintained in the broker's name and therefore serve as a collateral for the loan. The margin requirement (the maximum that an investor is allowed to borrow from his broker) is specified by the central bank in cooperation with financial markets regulators and can vary across countries. The current margin requirement at the New York Stock Exchange is 50% of the purchase price, meaning that at least 50% of the purchase price must be paid for in cash by the investor. If the price of the shares purchased on margin falls below a certain level such that the margin in the account is less than the maintenance margin, the broker may call on the investor to contribute more margin money or will require the stocks to be sold. As a numerical example consider the following:

### Example 1.1

An investor buys 100 XYZ shares currently trading at SR 50 per share. Assume that the initial margin is 50% and that the maintenance margin is 35%. Thus the investor contributes SR 2,500 (50% of the total required amount of SR 5,000) and borrows the remaining SR 2,500 from his broker, say at an interest rate of 10% per year. Assume now that the stock price appreciates by 20% to SR 60 by the end of the year, at which time the investor sells his shares. From the proceeds of the sale the investor pays off his loan with interest to his broker achieving a rate of return of 30%.

$$\frac{6,000 - 2,750 - 2,500}{2,500} = 0.30 \text{ or } 30\%$$

Note how the 20% rise in the stock price is translated to a 30% rate of return on the investor's contribution. This shows that buying on margin leverages the investment.

If however the stock price fell by 20% to SR 40 per share, the investor would suffer a leveraged loss of 50%.

$$\frac{4,000 - 2,750 - 2,500}{2,500} = -0.50 \text{ or } -50\%$$

**Example 1.1 (cont.)**

The broker protects his loan contribution by calling on the investor to provide further funds if the stock price falls, and the investor's equity falls below the maintenance margin of 35%. To compute the price at which a margin call will be received, solve for P in the following expression.

$$\frac{100P - 2,500}{100P} = 0.35$$

The numerator in the above expression is the equity contribution of the investor and the denominator is the value of the stocks owned. Solving for P we obtain SR 38.46, this is the stock price at which the investor's equity equals 35% of the value of the stocks.

## 1.4.2 SHORT SELLING

**Learning Objective 1.4.2 – Understand short selling**

Generally investors buy shares in the anticipation of a price increase in the future. If an investor however anticipates a decline in the price, the investor can sell the shares today (borrowing them via his broker) planning to purchase them in the future to replace the borrowed shares. Such a transaction is termed a short sale. The investor will reap a profit only if the price falls and the borrowed shares are purchased at a lower price. The investor is required to also pay any dividends that the share pays during the period that the shares are borrowed.

Stock exchange regulations only permit short sales to take place after positive changes in the stock price (uptick), in order to avoid excessive speculation against the stock. Additionally, most regulations require the proceeds from short- sales to be kept in an account in the investor's name. The broker may ask the short-seller to keep a cash margin or suitable collateral to guard against losses if stock prices rise.

**Example 1.2**

As an example, consider the short sale of 100 shares at the current market price of SR 50. The broker executes the short sale and requests a 50% initial margin from the investor. (The investor is, therefore, required to provide cash or cash equivalent collateral worth SR 2500). If the stock price falls to SR 30, the investor can purchase the 100 shares and 'cover' his short position by replacing the 100 shares borrowed, and generate a profit of SR 2,000. But, if the price goes up to SR 70, the broker may ask the investor to deposit cash margin or buy shares to replace the ones short sold, leading to a loss of SR2000 for the investor.

# 1.5 THE SAUDI ARABIAN STOCK MARKET

**Learning Objective 1.5 – Understand the characteristics of the Saudi Arabian Stock Market**

## INTRODUCTION

The Saudi Arabian Stock Market is the largest market in the Middle Eastern region. A number of registered dealers (Authorized Persons) take on the role of investment bankers to help issuers to sell stocks and bonds in the primary market. Secondary market trading is principally confined to shares and bond and Sukuk trading and is done through an electronic system described later in this section.

Only stocks of local Saudi companies are traded, and although the number of listed companies is relatively small, the total market value is substantial due to the size of the individual companies.

GCC citizens are treated like Saudis with respect to capital market dealings (except in IPOs which are restricted to Saudi citizens only). Foreign non –resident investors are not allowed to invest directly in listed stocks, although they have the right to indirectly invest in the market through mutual funds, equity swaps and exchange –traded funds (ETFs). Resident foreign investors are allowed to invest directly in all financial products and shares of most companies (except Mecca, Taiba and Jebel Omer companies). A significant proportion of outstanding shares is either held by the Saudi government or by large investors and is not traded in the stock market. By the end of the first quarter of 2011 the free float shares represented 41.09 % of the market. Table (1 – 2) shows the main highlights of the Saudi market:

**Table (1 – 2)**

| <b>Highlights of the Saudi Capital market at the end of 2010</b> |        |
|--|--------|
| Number of Listed Companies                                       | 146    |
| Total Market Capitalization(billion Riyals)                      | 1325.4 |
| Bonds (million Riyals)   | 7000   |
| Swap Agreements (billion Riyals)                                 | 24,8   |
| Number of Mutual Funds   | 267    |
| Mutual Funds Assets (billion Riyals)                             | 94,7   |
| Exchange Traded Funds (ETFs) (million Riyals)                    | 74.2   |

Source: Capital market Authority of Saudi Arabia (Annual Report 2010)

## THE PRIMARY MARKET

In the primary market, there are a number of registered dealers (Authorized Persons), who are licensed to help companies issue new securities. Regulations laid down by the Capital Market Authority specify the maximum and minimum number of shares that individual investors can subscribe for. In case of excess demand, shares are distributed on a pro rata basis in proportion to the number of shares originally demanded.

## THE SECONDARY MARKET

The secondary market is best described as an auction market, where investors enter the quantities and prices at which they wish to buy or sell. All the quotes are collected and listed at one Central Trading Unit. TADAWUL provides a continuous, order driven market, with up to the minute

price, volume and company information dissemination. It concentrates all local equity trading into one single market. The TADAWUL system connects individual banks to the Central Trading Unit via high speed networks. An investor who wishes to trade needs to open a trading account with one of the Authorized Persons (APs) in the Kingdom. All trading has to go through the authorized dealers as they are the designated brokers in the market. Once the investor has opened a trading account he/she can request buy or sell orders through the registered company. The employee who takes the order will enter it into the system. The system will automatically list the buy orders in descending order, highest price to lowest price and the sell orders in ascending order, lowest price to highest price. If a buy price matches a sell price, the system will automatically cross the order and generate the trade by assigning share ownership to the buyer and transferring money to the seller's account.

## 1.6 ORGANIZED (ON EXCHANGE) TRADING VERSUS OVER THE COUNTER TRADING

**Learning Objective 1.6** – *Understand* the differences, advantages and disadvantages of trading:

- (On Exchange), and
- Over The Counter

Secondary trading can take one of two forms: exchange trading or over the counter trading. In an exchange trading structure, an exchange oversees the trading, and makes sure that it complies with its regulations. The New York Stock Exchange (NYSE) is a good example, where all traders converge at one physical location for the buying and selling of securities. Individual investors wishing to buy or sell a security on the NYSE contact a member of the exchange who will execute the trade on their behalf. The exchange sets the various rules and regulations that govern how and when trading takes place and will also provide the infrastructure to monitor and settle all trades.

Transactions that take place outside the exchanges are said to occur in the Over the Counter (OTC) market. These transactions take place at no specific single location, often occurring through communication networks, comprising telephone lines, computer terminals, and other electronic facilities, which connect brokers, dealers and investors. Dealers quote the prices at which they are willing to buy and sell various securities on the network. Investors interested in trading can either execute trades directly or through a broker contacting a dealer on their behalf.

The OTC market, however, has no mechanism to stop sharp increases or declines in security prices, which may occur due to the temporary imbalance between supply and demand. In the organized exchange markets, such imbalances can be tackled by the exchange halting trading in a certain security, to allow additional buyers or sellers to restore equilibrium to the market. Some markets use ceilings and upper limits for daily security market price movements

## 1.7 MARKET STYLES

**Learning Objective 1.7** – *Understand* the characteristics, advantages and disadvantages of:

- Order driven markets
- Quote driven markets
- Principal trading
- Agency trading

Markets can operate on an order driven basis or a quote driven basis. In an order driven market, potential buyers and sellers of securities indicate how many securities they want to buy or sell and at what price. The trading system brings buyers and sellers together where their requirements match. Most of the major stock markets around the world operate some form of order driven trading system, such as the New York Stock Exchange and the London Stock Exchange.

A small number of stock exchanges operate a quote driven system. In a quote driven system, the exchange enables financial institutions to act as market makers. Market makers are obliged to provide two-way quotes to buy and sell particular securities throughout the standard market hours. In order to generate profit, the market maker will quote a lower price to buy the securities (the bid price), and a higher price to sell the securities (the offer ask price). The difference between the prices is often referred to as the bid-offer ask spread.

The key advantage that the quote driven system offers over the order driven system is the ability to trade throughout the trading day. This is because the market makers are obliged to quote prices and be able to trade in at least a set minimum number of securities. In an order driven market, liquidity could dry up, if there are no orders to buy (or to sell). The disadvantage of the quote driven system is that investors are effectively paying for the provision of liquidity through the bid-offer spread, compared to the order driven system where the orders are matched.

In both the order driven and quote driven markets, firms can act in two capacities – agent or principal. A firm acting as agent simply arranges the trade on behalf of the client, charging a commission. Firms acting as principal actually buy or sell securities themselves, such as market makers in quote driven markets. Clearly, firms taking principal positions take greater risks than those acting as in an agency capacity.

## 1.8 CUSTODY

**Learning Objective 1.8** – *Understand* the functions of, advantages and disadvantages of the following types of custodians:

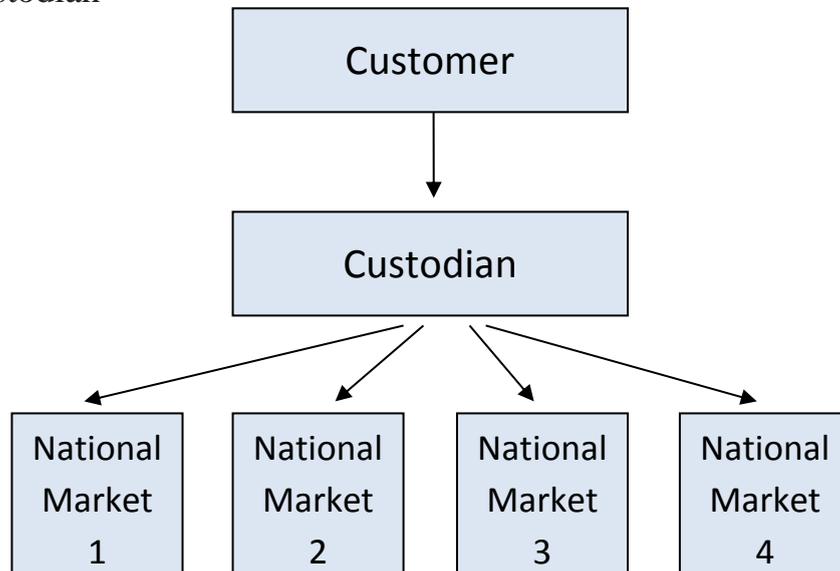
- Global
- Local
- Regional
- Sub custodian

In the financial markets, custody is simply looking after other people's investments. However, this requires more than just keeping those investments safe, it also requires some administration. For example, if the investments are shares, there are dividends to be collected; voting rights that can be taken up and other corporate actions, such as bonuses and rights issues, to be dealt with. The

custodian has to take responsibility for communicating with the investor on these matters.

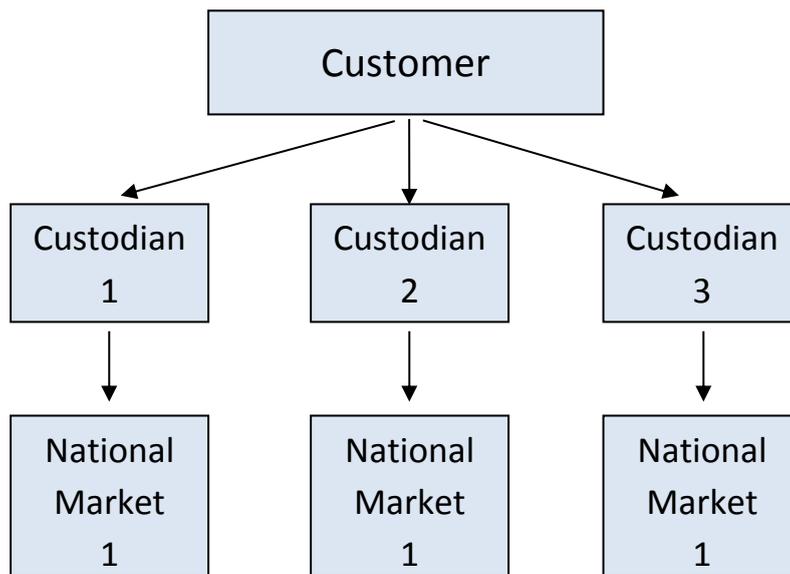
When choosing custodians for a global portfolio of investments, there are several alternatives.

### Global custodian



The global custodian option means the customer uses only one custodian for the entire portfolio. This has the advantage of giving the customer a single point of contact, with the global custodian providing consolidated reporting. The custodian will usually use sub-agents (sub-custodians) in each country to ensure a sufficient level of local expertise.

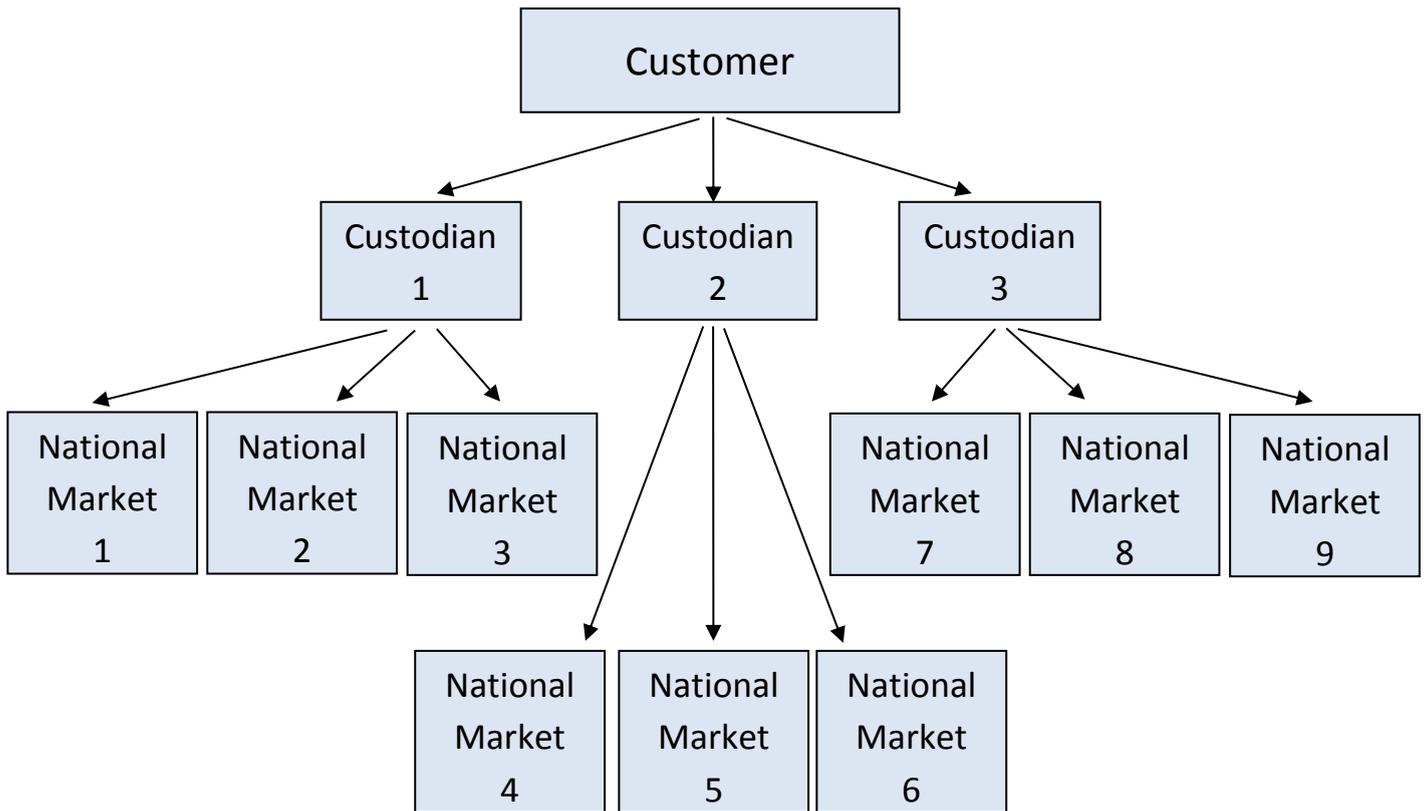
### Local or Domestic custodian



At the other extreme there is the local or domestic custodian option.

The best available custodian is chosen in each country. The advantage of doing this is that the customer can rely on the local expertise of the custodian. The drawback is that the customer must take care of far more administration because of the multiple relationships.

### Regional custodian



The third option is a compromise between the global and domestic custodian options. With the regional custodian structure, the customer appoints one custodian for each of a group of countries. This gives more expertise than perhaps a global custodian structure can deliver, whilst generating less administration for the customer than the domestic custodian structure. It also provides the investor with the ability to compare service levels and negotiate comparable fees.

# Review Questions: Financial Markets: Organization & Managements

Choose the correct answer for each of the following questions:

**1 - Financial markets have the basic function of**

- (a) Bringing together people with funds to lend and people who need funds.
- (b) Assuring that the swings in the business cycle are less pronounced.
- (c) Assuring that governments need never resort to printing money.
- (d) Both (A) and (B) of the above.

**2 - Which of the following can be described as involving direct finance?**

- (a) A corporation's stock is traded in an over-the-counter market.
- (b) People buy shares in a mutual fund.
- (c) A pension fund manager buys commercial paper in the secondary market.
- (d) None of the above.

**3 - Which of the following can be described as involving indirect finance?**

- (a) A Saudi company takes out a loan from a Saudi bank.
- (b) Investors buy shares in a Saudi equity mutual fund.
- (c) A Saudi bank buys commercial paper in a secondary market.
- (d) All of the above.

**4 - Which of the following statements about the characteristics of debt and equity are true?**

- (a) They can both be long-term financial instruments.
- (b) They both involve a claim on the issuer's income.
- (c) They both enable a corporation to raise funds.
- (d) All of the above

**5 - Which of the following are long-term financial instruments?**

- (a) A negotiable certificate of deposit
- (b) A banker's acceptance
- (c) A government Treasury Bond
- (d) A government Treasury Bill

**6 - Which of the following are short-term financial instruments?**

- (a) A negotiable certificate of deposit
- (b) A banker's acceptance
- (c) A government Treasury Bond
- (d) Both (a) and (b) of the above

- 7 - Which of the following instruments is not traded in a money market?**
- (a) Bankers acceptances
  - (b) Government Treasury Bills
  - (c) Repurchase Agreements
  - (d) Long term Bonds
- 8 - Which of the following instruments are traded in a capital market?**
- (a) U.S. government agency securities
  - (b) Negotiable bank CDs
  - (c) Repurchase agreements
  - (d) Commercial Papers
- 9 - The New York Stock Exchange is primarily**
- (a) A secondary market.
  - (b) An organized auction market.
  - (c) An over-the-counter market.
  - (d) Both (a) and (b) are correct.
- 10 - Which of the following are examples of a primary market transaction?**
- (a) Listed company issues additional stock.
  - (b) A company issues new bonds.
  - (c) An investor asks his broker to purchase 1,000 shares of SABIC common stock.
  - (d) Both (a) and (b) are correct.
- 11 - An Initial Public Offering in which the underwriter purchases the shares from the issuing firm and takes the risk of selling the shares to the public is known as:**
- (a) A firm commitment underwriting
  - (b) A negotiated underwriting
  - (c) A best efforts underwriting
  - (d) A competitive underwriting
- 12 - Which of the following refers to selling stock borrowed from another investor?**
- (a) A Stop-loss order
  - (b) A Margin trade
  - (c) A Short sale
  - (d) A Limit order
- 13 - In a market order, an investor asks the broker to execute a required transaction:**
- i. As quickly as possible**
  - ii. At a certain specific price**
  - iii. At the lowest (Highest) price in case of a buy (sell)**
- (a) I only
  - (b) I and II only
  - (c) I and III only
  - (d) I, II and III
- 14 - An investor buys 60 ABC shares currently trading at SR 80 per share, assume the initial margin is 50% and the maintenance margin is 35%, and that the broker charges 10% per year for the loan. Now assume that the stock price appreciates by 15% to SR**

**92 by the end of the year. The investor sells his shares and settled his transaction with the broker. What is the return generated by the investor?**

- (a) 10%
- (b) 30%
- (c) 20%
- (d) 15%

**15 - An investor buys 60 ABC shares currently trading at SR 80 per share, assume the initial margin is 50% and the maintenance margin is 35%, and that the broker charges 10% per year for the loan. What is the price below which the investor has to replenish his margin with the broker?**

- (a) SR 55.38
- (b) SR 12.31
- (c) SR 61.54
- (d) None of the above.

**16 - The custodian of an investor shares has responsibility for all the following except:**

- (a) Keeping investment safe
- (b) Collecting dividends
- (c) Exchange rate movements control
- (d) Voting on behalf of investors

# 2 Financial Markets Indicators

## Introduction

### 2.1 Security – market value indicators series

- 2.1.1 Major market indices
- 2.1.2 Computing indices

### 2.2 Financial markets quality indicators

- 2.2.1 Desirable characteristics of markets
- 2.2.2 Undesirable activities

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

The Operations and activities of financial markets need to be measured in terms of value and quality. The security market value is generally measured by market value indices. The security markets quality on the other hand is measured by certain measures such as market efficiency, market depth and width. Both types of measures are important as indicators and ranking criteria of securities market. In the following sections we describe the two types.

## 2.1 SECURITY – MARKET VALUE INDICATOR SERIES

### 2.1.1 MAJOR MARKET INDICES

**Learning Objective 2.1.1** – *Understand* the uses and characteristics of the following market indices:

- FTSE 100
- Dow Jones
- NYSE Composite
- NASDAQ
- CAC
- DAX40
- Nikkei 225
- S&P500

Note: Candidates will not be required to calculate indices

Market Indices are computed to provide an indication of the overall performance of the stock market or specific segments of the market. The Dow Jones Industrial Average (DJIA), for instance, is an average of the 30 largest stocks in the US, while the Dow Jones Transportation Index is an average for only the stocks of transportation companies. Technically, an average can be constructed by using different weighting schemes: price weighting, value weighting, or equal weighting. The distinctions between these three methods of construction will be considered in more detail in the next section.

The purpose of indices is to provide a barometer of the performance of the overall stock market. At a given point in time some stocks may be advancing while others may be declining. The index is the average that provides the general direction of the market. The mutual fund industry uses these indices as benchmarks to assess the performance of particular funds and fund managers.

The following table highlights the characteristics of some of well known international equity indices:

| The Index                   | The Exchange            | Weighting      | Stocks Included                |
|-----------------------------|-------------------------|----------------|--------------------------------|
| FTSE100                     | London Stock Exchange   | Value weighted | 100 largest stocks             |
| DAX40                       | Frankfurt Exchange      | Value weighted | 40 largest stocks              |
| NIKKEI225                   | Tokyo Stock Exchange    | Price Weighted | 225 largest stocks             |
| DOWJONES INDUSTRIAL AVERAGE | New York Stock Exchange | Price weighted | 30 largest stocks              |
| NYSE Composite              | New York Stock Exchange | Value weighted | More than 2,000 largest stocks |
| NASDAQ Composite            | NASDAQ                  | Value weighted | Almost 5,000 stocks            |
| CAC                         | Paris Exchange          | Value weighted | 40 largest stocks              |
| S&PSOO                      | NYSE and NASDAQ         | Value weighted | 500 largest stocks             |

## 2.1.2 COMPUTING INDICES

**Learning Objective 2.1.2** – *Know* the methods of constructing stock indices:

- Price weighting
- Value weighting
- Equal weighting

Note: Candidates will not be required to calculate indices

In a price weighting scheme a stock with a higher price will have a greater influence on the average. In a value weighted scheme the stock of a company with a larger value (measured by market capitalization = price per share times the number of shares outstanding) will have a greater influence on the average. An equal weighting scheme as the name implies assigns the same importance to every stock comprising the average. The Dow Jones Industrial Average (DJIA) is an example of a price weighted index, while the S&P500 index in the US and the TASI (Tadawul All Shares Index) in Saudi Arabia are examples of value weighted indices.

The Dow Jones Industrial Average (DJIA) is the oldest and most widely known index representing the 30 largest and most significant stocks in the US economy. Originally, the Index was computed by dividing the sum of the 30 stock prices by 30. However, over time, the weights have been altered to reflect stock splits, stock dividends, and new stocks replacing older ones. The implied weight for this index is determined by the share price and it is therefore a price weighted index.

The S&P 500 Index is composed of the 500 largest stocks traded on the US exchanges. The S&P 500 uses market capitalizations as weights - it is a value weighted index. The index's base value was set in the early 1940s, with the base value arbitrarily set as 10. The value of the index is calculated as shown below

$$\text{Value of Index}_{(t)} = \left[ \frac{\sum P_t Q_t}{\sum P_b Q_b} \right] \times 10$$

$P_t$  = ending prices for stocks at time t

$Q_t$  = number of outstanding shares at time t

$P_b$  = ending prices for stocks at base time

$Q_b$  = number of outstanding shares at base time

10 = the assigned value of the index at base time

As an illustrative example examine the data shown in table 2 – 1 for three stocks. Assume that the base year is 2009 and that we wish to construct a value weighted index for the three stocks. Applying the previous equation, it is clear that the value of the index on 31/12/2010 is 10.25

$$\text{Index value} = \frac{410.000}{400.000} \times 10 = 10.25$$

This means that the index rose 0, 25 points. Unlike Dow Jones, the S& P 500 index is not affected by stock splits or stock dividends, as it is mechanically self-adjusting. For example, in the case of stock split, the fall in price is compensated by a corresponding increase in the number of shares, which means that the total value of the firm does not change.

**Table 2-1**

Data on Value weighted Index for a Hypothetical Market with 3 Stocks

**31/12/2009**

| Stock | Price | No. of shares | Value<br>(Price x No. of shares) |
|-------|-------|---------------|----------------------------------|
| A     | 30    | 2,000         | 60,000                           |
| B     | 40    | 4,000         | 160,000                          |
| C     | 60    | 3,000         | 180,000                          |
|       |       |               | $\Sigma = 400.000$               |

31/12/2010

|   |       |         |                    |
|---|-------|---------|--------------------|
| A | 35    | 2,000   | 70,000             |
| B | 26.67 | 6,000*  | 160,000            |
| C | 56.25 | 3,200** | 180,000            |
|   |       |         | $\Sigma = 410.000$ |

\* The increase in the number of shares compared to 31/12/2009, is due to a 3:2 split of company B stock

\*\* The increase represents stock dividends.

It should be noted that TASI in Saudi Arabia is a value weighted index

## 2.2 FINANCIAL MARKETS QUALITY INDICATORS

### 2.2.1 DESIRABLE CHARACTERISTICS OF MARKETS

**Learning Objective 2.2.1** – *Understand* the desirable characteristics of capital markets:

- Market efficiency
- Market depth
- Market width

Financial markets play a number of roles in the economy. The primary market provides an intermediary function by channeling funds from investors (with savings) to firms and businesses that are seeking funds for investments. Secondary markets reinforce the primary market by providing the flexibility for investors to liquidate their holdings when desired. Financial markets also perform an allocative function, by directing investor savings to business and investments with the highest returns. Firms and businesses that are efficiently operated and are able to identify superior investment opportunities will command higher prices for their securities and will attract the needed capital. Resources thus will flow to the best uses in the economy. However, this depends on whether the market is efficient, in the sense that whether stock prices accurately reflect the expectations about companies' performance.

Markets are usually classified under one of three levels of efficiency; weak, semi strong and strong. In the weak form efficient market, stock prices are assumed to reflect all past information including price and volume information which means that abnormal profits cannot be made of trading based on historical information. The market reflects all publicly available information in the semi strong form efficient markets, while reflecting all information whether public or nonpublic in security prices. In the semi strong form investors cannot make abnormal profits using publicly available information, and not even inside information if the market is efficient at the strong form level.

In addition to efficiency, liquidity is another desirable property in a market. Liquidity enables an investor to sell a security quickly and easily at a fair price. Money market securities such as government treasury bills tend to be very liquid, while real estate assets are typically illiquid. Market participants are willing to pay a premium for securities that are liquid and inflict a discount on securities that are illiquid. The liquidity of a security is particularly affected by market depth and market width.

## Market Depth

The market for a security is said to have depth, if there are plenty of buy orders and sell orders within a narrow range around the current market price. In a deep market, the existence of many orders means that the price of the security is quickly brought to equilibrium as the demand and supply for that security changes.

In contrast, shallow markets are characterized by shortages or oversupply resulting in discontinuity of buy and sell orders and large price jumps. If supply exceeds demand the price of the security declines by a large amount that may cause material losses to holders of the security, which may force them to postpone selling the security. On the other hand, if demand exceeds supply, prices rise to such a degree that potential buyers may postpone the purchase of the security.

## Market Width

Large transaction volumes characterize wide or broad markets. In such markets, not only are prices able to change continuously because of the existence of lots of orders (as in a deep market), but the order sizes above and below the current market price are also large. As a result, there is no incentive for buyers or sellers to postpone their decisions. Market makers are willing to accept smaller margins (spread) as the high turnover volume compensates for the small margins.

## 2.2.2 UNDESIRABLE ACTIVITIES

**Learning Objective 2.2.2** – *Understand* the following undesirable activities:

- Wash sales
- Cornering the market
- Churning

Developed capital markets need to have regulations to prevent undesirable activities impacting the efficiency of the market. Three such undesirable activities are wash sales, cornering the market and churning. Each of these will be considered in turn.

### Wash Sales

A wash sale is a means to create an illusion of trading activity for a given stock. One form of wash sale is when a person sells a security to his son or a family member and then buys back the security on the same day at a higher price or lower price, depending on the illusion that the person is intending to create. The primary motive of such actions is to mislead the market in order to make unethical profits.

**Example 2.1**

In a fairly inactive market, a deceptive investor, who wants to buy a security at a price lower than its current price, buys part of the order at the current price, and wash sells it to relatives or friends at a lower price. Alternatively, the investor sells the shares at lower prices to more than one of the brokerage houses, under different assumed names. As information on this sequence of sales is disseminated to the market it creates an impression of worsening conditions for the stock. As a result, some investors may panic and sell their shares leading to further declines in prices allowing the deceptive investor to jump in as a buyer at the abnormally depressed prices.

A deceptive investor could use this method to artificially raise the price of a security by selling the stock at a high price and buying it back at a lower price on the same day. Encouraged by this false impression of false trading activity other investors enter the market as buyers resulting in a further rise in the security's market price. This allows the deceptive investor to sell his holdings at these artificially higher prices.

**Cornering the Market**

When a person buys all or most of the available quantities of a certain security, to create a form of monopoly that may later enable him to sell the security at a higher price, he is said to be cornering the market. In the past there have been some instances where traders have tried to cover the market for precious metals such as gold and silver. Market regulation generally prohibits such activity.

**Churning**

Churning is said to take place when a broker engages in frequent and unnecessary trading on behalf of the client. This is done by some unscrupulous brokers to generate increased income from trading commissions. It is considered unethical and is an illegal activity.

# Review Questions: Financial Market Indicators

Choose the correct answer for each of the following questions:

- 1 - In calculating the S&P 500 index (which is a value-weighted index), stock splits should be:**
  - (a) Ignored because they occur so infrequently
  - (b) adjusted for in the numerator of the index
  - (c) adjusted for in the denominator of the index
  - (d) Ignored because they do not affect the value of the index
  
- 2 - Value-weighted index calculation:**
  - (a) Is not affected by stock splits but affected by stock dividends
  - (b) Is not affected by stock dividends but affected by stock splits
  - (c) Is not affected by both stock splits and stock dividends
  - (d) Is affected by both stock splits and stock dividends
  
- 3 - Which of the following indices is a value weighted index?**
  - (a) FTSE100
  - (b) Dow Jones
  - (c) Nikkei 225
  - (d) Dow Jones Transportation index
  
- 4 - Which of the following indices is a price weighted index?**
  - (a) FTSE100
  - (b) DJIA
  - (c) DAX40
  - (d) NASDAQ
  
- 5 - When a stock market index moves in one direction it means that:**
  - (a) All the individual stocks in that index moves in that direction.
  - (b) Most of the individual stocks in that index move in the same direction of the market.
  - (c) The number of stocks moves in the overall market direction is less than the number of stocks moves in the opposite direction.
  - (d) The movement in the index is dominated by the movement in the stocks which move in the market direction.
  
- 6 - A rising stock market index due to higher share prices:**
  - (a) Increases people's wealth and as a result may increase their willingness to spend.
  - (b) Increases the amount of funds that business firms can raise by selling newly issued stock.
  - (c) Decreases the amount of funds that business firms can raise by selling newly issued stocks.
  - (d) Both (a) and (b) of the above.

**7 - All the following represent wash sale transactions except:**

- (a) Wash sales to relatives.
- (b) Sell and buyback the stock from the same person within the same day.
- (c) Agreeing to selling stock to create the impression of a strong market.
- (d) The company sells shares to its employees at low price to motivate their performance.

**8 - Which one of the following is not a desirable property of a financial market:**

- (a) Efficiency
- (b) Depth
- (c) Wide market
- (d) Shallowness

**9 - In deep financial markets:**

- (a) There are plenty of buy and sell orders within a wide range around the current market prices.
- (b) There are plenty of buy and sell orders within a narrow range around the current market prices.
- (c) There are large order sizes above and below the current market price.
- (d) Supply of securities exceeds demand for those securities.

# 3 Investment Instruments and Securities

## Introduction

### 3.1 Investments instruments and securities

- 3.1.1 Money market instruments
- 3.1.2 Capital market instruments
- 3.1.3 Saudi Arabia instruments
- 3.1.4 International investments

## Review questions

### ***Learning objectives***

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter describes the various types of investments such as stocks and bonds which are traded in capital markets as well as the money market securities which are traded in money markets. Thus, it is highly important that investors and market participants understand the characteristics of these investments and their risk- return properties.

## 3 INVESTMENT INSTRUMENTS AND SECURITIES

### 3.1 MONEY MARKET INSTRUMENTS

**Learning Objective 3.1** – *Understand* the characteristics of the following money market instruments:

- Negotiable Certificates of deposit
- Treasury Bills
- Commercial paper
- Bankers' Acceptances
- Repurchase Agreements

As mentioned in previous chapters, short – term securities are traded in the money market. These securities have three important features that distinguish them from long – term securities:

- 1- These securities are zero coupon instruments, which mean that they do not make any periodic interest payments. The return to the investor comes from the difference between the price paid and final maturity value.
- 2- Tend to be highly liquid, which means that their holders can sell the security in the secondary market with ease and not incur material capital losses.
- 3- Tend to have low risk due to their short – term maturity and high liquidity.

In the following sections we describe five of the most common short – term instruments, Negotiable Certificated of Deposits, Treasury Bills, Commercial Paper, Bankers' Acceptances, and Repurchase Agreements.

#### **Negotiable Certificates of Deposits (CDs)**

A negotiable Certificate of Deposit (CD) is a deposit with a bank made by an investor for a fixed period of time. The deposited funds and the promised interest may not be withdrawn until the maturity date of the CD. An investor wishing to cash in the CD before the maturity date may sell the instrument in the secondary market. Specialized brokers and dealers that deal in CDs make it easy for investors to transact in these securities. Negotiable CDs in the US have denominations of \$100,000 and have maturities ranging up to one year, although maturities less than six month are more popular.

An investor receives the face value and the interest at the maturity of the CD. For example a 6 month CD with a face value of \$100,000 carrying an interest rate of 6% per year (3% for six months) will pay \$103,000 at the end of six months

It should be noted that bank deposits are considered short – term financial assets but do not qualify as short – term securities as they are not negotiable instruments that trade in the market.



## Treasury Bills (T-Bills)

Treasury Bills are short-term government securities, with maturities of less than one year. The US government issues these bills periodically, once a week. Similarly in Saudi Arabia T-Bills are issued once a week. Treasury Bills have a highly liquid secondary market and are easy to transact. A Treasury bill is an example of a discount security where the market price of the bill is less than the face value. The face value represents the amount that the government promises to pay at the maturity of the bill. A six month T-bill that sells for a price of \$9,750 for example will provide an investment return of \$250 (\$10,000- \$9,750).

The common practice in the market is to quote an annualized (360 days) discount on the bill. A 5% discount implies that a bill with 360 days maturity (approximately 1 Year) will have a price that is 5% less than the face value. A bill with 180 days maturity (1/2 year) and a 5% discount will have a price that is 2.5% less than the face value. To find the price of a bill given the discount rate and the maturity use the following formula:

$$\text{Price} = \text{Face Value} - \left( \text{Face Value} \times \text{Discount rate} \times \frac{\text{Maturity in days}}{360} \right)$$

Transactions in T-bills are in large denominations. In the US most transactions are for amounts in excess of one million dollars face value.

## Commercial Paper

Commercial paper (CP) is similar to T-Bills described above, except that it is issued by private businesses, rather than central government. Commercial paper thus represents short term business borrowing from the public. Issuing CP is therefore a substitute to short term borrowing from a bank. Since CP is unsecured debt (the investor can lose his money if the business defaults) only big corporations or banks with a good financial standing are successful in issuing such securities. Usually CP issues are backed by open lines of credit with commercial banks, thus providing some protection to the investor.

Commercial paper in the US is issued in denominations of \$100,000 and therefore out of the reach of the small investor. Small retail investors can however participate indirectly through money market mutual funds. Being unsecured debt, CP is riskier than T-bills and provides a yield slightly higher than that for T-bills. CP trades in the secondary market and is quite liquid. In some cases the issuers of the CP will create a secondary market by standing ready to buy and sell the paper issued by them. The default risk of particular CP is directly related to the financial health of the issuer. Agencies such as Standard & Poor's provide ratings of individual issuers to help investors decide on the relative riskiness of the CP that trades in the market. The assigned rating and the maturity determine the rate of return that the investor can earn on the CP. Owing to regulatory constraints in the US most companies issue commercial paper with a maturity of less than 9 months (270 days).

## Bankers' Acceptances

Bankers' acceptances (BA) are generally a by-product of import-export transactions under a letter of credit (LC) arrangement. It is essentially a post- dated check issued in favor of the exporter by the importer's bank. Specifically it is an order issued to a bank by a bank's client (typically an importer) to pay a certain sum (typically to the exporter) at the end of a specific period. If the bank 'accepts' the order to pay the stated amount, the check becomes a Bankers' Acceptance. The exporter can choose to hold the BA till the specified date in the future to receive the funds or can

sell the BA in the secondary market at a discount. BA's are relatively liquid securities with low risk.

## Repurchase Agreements (REPOs)

Financial institutions and security dealers use repurchase agreements or repos to obtain short term financing, usually on an overnight basis. Repos can also be used for longer periods, in which case they are called 'term repos'.

Under a repo arrangement the dealer seeking short term overnight funds will sell securities to an investor, simultaneously agreeing to repurchase the same securities back the next day at a price higher than the sale price. The difference between the two prices provides the effective interest to the investor supplying the funds.

A repo is in essence a short-term loan, with the securities involved serving as collateral on the loan. Repos are considered relatively safe as the securities (generally government securities) serve as collateral on the loan. While most repo transactions do not entail the transfer of the securities, investors can if they desire, protect themselves by taking delivery of the securities.

Repos are also used by central banks to regulate money supply in the economy. In Saudi Arabia repo agreements are made between banks and SAMA, where Saudi Arabian Monetary Agency (SAMA) acts as lender and the commercial bank, as the borrower, in need of liquidity.

## 3.2 CAPITAL MARKET INSTRUMENTS

**Learning Objective 3.2** – *Understand* the characteristics, settlement periods, coupons/dividends, terms and maturities (where appropriate) of the following capital market instruments:

- Corporate Bonds
- Preferred stock (Preferred shares)
- Common stocks(Ordinary shares)

Capital market instruments exist in the form of bonds and stock (or shares).

### Bonds

Bonds represent debt claims issued in return for borrowing by corporations and governments. A bond is a contract between the issuer (the borrower of funds) and the buyer (the lender or investor of funds) of the bond. Under this contract, the second buyer lends a certain sum to the issuer, who agrees to repay the principal and agreed upon interest at specified dates. The contract may contain other conditions to protect the lender such as pledging certain assets as collateral, in which case the bond is called a mortgage bond or secured bond. Bonds issued by corporations and businesses are called Corporate Bonds, while those issued by the government are either called Treasury Bonds (T-Bonds) or Treasury Notes (T-Notes). Government bonds with maturities between 1 and 10 years are generally called T-notes while those with maturities longer than 10 years are called T-Bonds.

Three elements characterize a bond. The first is the maturity of the bond, which indicates the time period of the loan. The second is the face value or par value of the bond. This indicates the principal amount that the borrower agrees to repay at maturity. In the US most bonds have a par value of \$1,000. The third element is the coupon rate expressed as a percentage of face value, indicating the periodic interest payments that the borrower promises to make over the life of the bond. Most bonds make semi-annual coupon payments. For example a SR1,000 face value, 10-year bond, with a coupon rate of 8%, promises to make payments of SR40 every six months (4% of SR1,000) for 10 years, and the face value of SR1,000 at the end of the tenth year. Given these three elements the investor decides on how much to pay for the bond. If the stated coupon rate is

higher than the interest rate that the investor desires he will be willing to pay more than the face value and the bond will trade at a premium. If the coupon rate is less than the interest rate that the investor demands, he will pay less than the face value and bond will trade at a discount. Finally, if the coupon rate matches the interest rate that the investor demands, the bond will trade at par. The interest rate or yield that the investor demands will depend on the general level of interest rates in the economy, the credit quality of the issuer, and any special features that the bond may carry

Bonds can have a variety of features, some of which are described below:

**Fixed vs. Floating Interest.** Fixed rate bonds pay a fixed percentage of the par value of the bond at regular intervals (normally every 6 months). Floating rate bonds on the other hand pay variable rates of interest which is determined by market interest rates (such as 6 month LIBOR) at the time of the periodic payment. A floating rate bond provides protection against interest rate risk. Bonds with a floating rate of interest are often referred to as floating rate notes.

**Mortgage Bonds vs. Unsecured Bonds.** A mortgage bond, or a bond with a fixed charge, has a specific asset that collateralizes the loan and is therefore less risky for the investor. Sometimes, the issuer of the bond offers the investors a more general form of security over the assets of the issuer at the time - this is known as a 'floating charge'. If the issuer fails to make the required payments on the bond, the investors are able to take possession of the specified asset or assets and use them to recoup the money due. In contrast to the fixed or floating charge bonds, an investor in an unsecured bond is only a general creditor and may stand to lose his money in the event the company faces financial distress.

**Asset-backed securities.** Some bonds are issued to finance particular activities and are provided with some form of security against the assets that the activities generate. An example might be a bond issue to finance the construction of a toll bridge, where the money to service and repay the bond is provided by the toll receipts, once the bridge is in operation. There are numerous other examples of asset-backed securities such as bonds issued by financial institutions backed by credit-card receivables and bonds issued by local authorities backed by parking fines.

**Convertible Bonds.** Convertible bonds are corporate bonds that give the buyer the option to exchange their bonds for a specified number of shares in the company. For example a convertible bond with a conversion ratio of 5 implies that the bondholder may choose to exchange his bond for 5 shares of stock. Bondholders compare the value of the bond against the conversion value to decide on when to convert to shares. If the value of the bond is say SR980 and the market price of each share is SR180, it would not be profitable to convert, since the conversion value is only SR900 (5 x SR180). The excess of the bond's market price over conversion value is called the conversion premium, in this case SR80. If stock prices were to increase in the future it may be advantageous to convert the bond. Convertible bonds are commonly issued by startup firms that find it difficult to issue shares. Once the company succeeds, the share price tends to rise and bondholders are induced to convert. The company changes lenders into owners of the company, and reduce the company's debt Investors who buy convertible bonds have an opportunity to gain if the stock price of the firm increases. This perceived opportunity allows the company to issue these bonds with a lower coupon rate.

## Preferred Stocks

Legally preferred stock represents ownership rights in the company, but from a financial point of view preferred stock resembles a bond. It is best to think of preferred stocks as a security that combines the characteristics of common stock and bonds. Preferred stock, similar to common stocks, has a par value and market value. The book value represents the face value plus the issue premium as shown in the company records divided by the number of shares issued.

A preferred shareholder is promised a fixed dividend each year, much like the coupons promised on the bond. The difference however is that the firm is not obliged to make the dividend payment and can defer the dividend payment, particularly during periods that the firm is not making profits. Most preferred stocks are of the cumulative type, meaning that any missed dividends must be paid cumulatively at a future date. The preferred stockholder has a priority claim over common shareholders, in case of liquidation, and in the payment of dividends. Common shareholders can be paid dividends only after the promised payments have been made to the preferred stock holders. Preferred shareholders have a lower priority than bondholders; preferred shares are therefore considered riskier than the bonds of the company. Unlike common shares, preferred shares generally do not convey voting rights to their holders. Preferred shareholders therefore cannot influence the election of members to the company board nor has a say in how the company is managed.

The benefit of issuing preferred stocks is that they share the same features as a bond but with the advantage that the firm can skip the promised dividend in the event of financial difficulty. Furthermore, since preferred stocks do not have voting rights they do not cause dilution in the control of the company. One disadvantage is that unlike coupon payments on bonds, dividends are paid from after tax profits and therefore do not lessen the tax payable. The second disadvantage relative to bonds is that, investors consider preferred shares to be riskier and demand a higher yield before they will invest in them. The cost of funds raised through the issue of preferred stocks is higher than the cost of funds from bond issues.

Particular classes of preferred stock can include participating preferred stock, redeemable preferred stock and convertible preferred stock. Participating preferred stock gives the stockholders the ability to receive larger dividends in periods where the issuer generates substantial profits. The preferred stockholders are able to participate in the bumper profits, according to a formula that is set by the issuer at the point of issue.

Redeemable preferred stock gives the issuer the ability to repay the preferred stockholders at particular points. The redemption is not required, and if the issuer was in financial difficulty it would be unable to redeem the preferred stock.

As its name suggests, convertible preferred stock is preferred stock where the stockholder has the option to convert into a specified number of ordinary shares. Until conversion, the preferred stockholder will receive preferred dividends and have no voting rights. After conversion, the stockholder will be a common stockholder and gain voting rights.

## Common Stocks

Common stock represents an ownership claim on the company. As owners, common stockholders have only a residual claim, meaning that they are last in queue to receive financial benefits. In the event of liquidation of the company, common shareholders receive anything left over after the tax authorities, bondholders, general creditors and preferred stockholders are paid off. As long as the issuer is a going concern, common shareholders only receive dividends after coupons, taxes, and preferred dividends have been paid. Common shareholders in a corporation have limited liability and in the worst case scenario can lose the investment that they have made in purchasing their shares - they cannot lose anything more than this.

The management of a company is not required to pay dividends to their shareholders even if the company is profitable. A company can choose to reinvest its profits into new investment opportunities. It is however customary for most companies to have a well-defined stable dividend policy. The part of profits not paid out as dividends is called retained earnings as it is kept by the company.

Common shareholders have the right to vote in shareholders meetings where major issues such as mergers and acquisitions are decided. The investor's ability to influence decisions depends on the number of shares owned, the general rule being one share one vote. However, most investors tend to be passive and sign proxy forms authorizing a member of the board of directors to vote on their behalf. Such action tends to deprive the investor from direct participation in running the company's affairs.

From the firm's perspective, common stocks represent a permanent source of financing, since they are not redeemable and the company is under no obligation to pay dividends, even in profitable years. Furthermore, the issuance of common shares reduces the ratio of debt in the company's capital structure, increasing the debt capacity of the firm, i.e., it increases the firm's ability to obtain debt in the future when needed, other things remaining constant.

Occasionally common stock can be issued in partly paid form. This occurs when the issuer only requires a proportion of the proceeds of the issue of the share to be paid at issue, the rest becoming payable at certain specified dates in the future.

Common stock is generally registered in the name of the purchaser and is therefore protected against loss through theft or fire. Sometimes shares are issued in bearer form, where no register is maintained and physical possession of the share certificate is required as proof of ownership. Bearer instruments might be attractive to investors who would like to maintain anonymity for tax reasons.

As mentioned above, common stockholders are granted voting rights since they are part owners of the issuing company. However, some companies have more than one class of common stock, one class having the right to vote and the other not having the right to vote and referred to as non-voting shares. These are common in smaller companies, where outside investors provide equity capital and despite holding a minority of the overall number of shares they want to control the company. The way this is achieved is by making the shares owned by the founders non-voting. The result is that the new investors have control, despite holding a minority of the shares.

### 3.3 SAUDI ARABIAN INSTRUMENTS

**Learning Objective 3.3**—*Understand* the characteristics of the following instruments in the Saudi Arabian market-place:

- Treasury Bills
- Government Bonds
- Repurchase Agreements

In addition to shares, a limited amount of trading in Treasury Bills, Government Bonds, and Repurchase Agreements (Repos) takes place in Saudi Arabia. In the late 1980s SAMA authorized banks to issue negotiable Certificates of Deposits (CDs) with one-year maturity, but banks have yet to take advantage of this facility.

Treasury Bills, which represent short-term borrowing by the government to finance its budget deficits, were first issued on 18 November 1991. These Treasury Bills are issued by SAMA, on behalf of the Ministry of Finance and National Economy. These bills are issued with different maturities, including 4 weeks (30 days), 13 weeks (90 days), 26 weeks (180 days), and 52 weeks (one year). The first three maturity types are issued once a week, on Mondays, with the 13 week bills being issued the most.

Treasury bills are sold at a discount from nominal value or par value (i.e., at a price less than the nominal value). An investor purchasing the bill receives the nominal value at maturity, the difference between the nominal value and the discounted value representing the interest on the investment. For example a SR 100 nominal value, 13 week bill purchased at a price of SR 98.25, will earn an interest of SR 1.75 for the 13 week investment.

Treasury bills are issued in multiples of one million riyals primarily to commercial banks, while denominations in multiples of 50 thousand riyals are sold to non- bank customers.

Treasury bills in Saudi Arabia have a reasonable liquid market. Banks and market makers can re-sell the bills to government agencies and corporations, to other banks, or to individual investors. In addition, SAMA always stands ready to enter into repos with commercial banks. Under a repo arrangement SAMA purchases up to 75% of a bank's holding of Treasury bills, simultaneously agreeing to re-sell the bills back to the bank within a period ranging from one night to 7 days. The bank's repurchase price is usually higher than the selling price. The difference represents the interest earned by SAMA on the repo transaction. This transaction simply represents a borrowing of funds by the bank from SAMA, with the Treasury bill serving as collateral.

Various governmental agencies also issue government development bonds, which are securities traded in the capital market. The first such bond was issued 11 June 1988. Since then, the bonds have been issued by the Ministry of Finance every two weeks. Those bonds are used to finance development projects in the Kingdom, and they usually have maturities between two and ten years. They are non-callable, with fixed or floating rates that are paid semi-annually. These bonds are issued bi-monthly in million riyal denominations to banks and mutual funds or in 50 thousand riyal denominations to small investors. Similar to Treasury bills, banks can re-sell the bonds to government agencies and corporations, other banks, other mutual funds in the Kingdom, and local investors. Bondholders can enter into repo transactions with SAMA, but these repo agreements cannot exceed 28 days and are thus considered a short-term financial asset.

In Recent years, no public debt instruments were issued due to surplus sustained in the Kingdom due to high oil prices. Although, recent budget surpluses have allowed suspension of issuing long-term bonds, treasury bills remain in issue to use in repurchase operations (Repos).

### 3.4 INTERNATIONAL INVESTMENTS

**Learning Objective 3.4** – Know the characteristics of the following international investments and investment vehicles and the exchanges on which they are traded:

- American Depositary Receipts(ADRs)
- Eurobonds
- Overseas Government Debt (UK, US, Japan, Australia, France, Germany)
- Settlement periods, coupons, terms and maturities
- Overseas Corporate Bonds (UK, US, Japan, Australia, France, Germany)

A US based investor wanting to invest in a stock from outside the United States, such as a European stock, would have to exchange dollars for Euros and then invest in the European share. To make this process easier and to attract US investors, many large, non-US companies have created American Depositary Receipt (ADR) programs. Essentially, a US based intermediary buys the foreign stock and issues ADRs against these holdings. The US investor can then buy an ADR; this gives him a claim on the underlying foreign stocks held by the intermediary. ADRs trade on US exchanges, in US Dollars like any other US listed security.

Bond markets have also become more international in nature. A borrower can choose to issue bonds in different currencies and in different countries. A Eurobond is a bond issued in a country but denominated in a foreign currency. For example a bond issued in the UK but denominated in dollars would be a Eurobond, because it is denominated in US Dollars it would be referred to as a Eurodollar bond. Similarly a Yen denominated bond issued in Singapore would be called a Euro yen bond.

The following table outlines the way government bonds are referred to and classified across some of the major economies of the world, as well as highlighting the settlement period for any secondary market transactions.

(This table for knowledge purpose only)

| Country        | Name                           | Coupon Frequency | Maturity                                | Settlement Period |
|----------------|--------------------------------|------------------|---|-------------------|
| United States  | Treasury Bonds                 | Semi-annual      | Over 10 years                           | T + 1             |
|                | Treasury Notes                 | Semi-annual      | 2 to 10years                            |                   |
| United Kingdom | Gilts                          | Semi-annual      | > 1 year                                | T + 1             |
| France         | OAT                            | Annual           | 7 to 30years                            | T + 3             |
|                | BTAN                           | Annual           | 2 to 5 years                            |                   |
| Germany        | Bund                           | Annual           | Over 10 years                           | T + 3             |
|                | Bobl                           | Annual           | 5 years                                 |                   |
|                | Schatze                        | Annual           | Up to 2 years                           |                   |
| Japan          | Japanese Government Bond (GGB) | Semi-annual      | Long (10 years)<br>Super long(20 years) | T+3               |
| Australia      | Treasury Bonds                 | Semi-annual      | > 1 year                                | T+3               |

In addition, there are substantial corporate bond markets in the US, UK, Japan, France, Germany and Australia.

# Review Questions: Investment Instruments & Securities

Choose the correct answer for each of the following questions:

- 1 - **(I) The coupon rate is the rate of interest that the issuer of the bond must pay. (II) The coupon rate is usually fixed for the duration of the bond and does not fluctuate with market interest rates.**
  - (a) (I) is true, (II) is false.
  - (b) (I) is false, (II) is true.
  - (c) Both are true.
  - (d) Both are false.
  
- 2 - **Call provisions will be exercised by:**
  - (a) The issuer if interest rates rise.
  - (b) The investor when interest rates rise.
  - (c) The issuer when interest rates fall.
  - (d) The investor when Interest rates and bond values fall.
  
- 3 - **(I) Callable bonds must have a higher yield than comparable non – callable bonds.(II) Convertible bonds are attractive to bondholders and sell for a higher price than comparable nonconvertible bonds.**
  - (a) (I) is true, (II) is false.
  - (b) (I) is false, (II) is true.
  - (c) Both are true.
  - (d) Both are false.
  
- 4 - **(I) A share of common stock in a firm represents an ownership interest in that firm.(II) A share of preferred stock is as much like a bond as it is like common stock.**
  - (a) (I) is true, (II) is false.
  - (b) (I) is false, (II) is true.
  - (c) Both are true.
  - (d) Both are false.
  
- 5 - **Preferred stockholders hold a claim on assets**
  - (a) That has priority over the claims of both common stockholders and bondholders.
  - (b) That has priority over the claims of neither common stockholders nor bondholders.
  - (c) That has priority over the claims of common stockholders, but after that of bondholders.
  - (d) That has priority over the claims of bondholders but after that of common stockholders.

**6 - Where treasury bills, issued by SAMA, are sold to non-bank customers, these transactions are based on multiples of what denomination?**

- (a) SR 50000
- (b) SR100000
- (c) SR500000
- (d) SR1000000

**7 - Repo agreements in Saudi Arabia are made between banks and:**

- (a) Capital Market Authority
- (b) Securities Deposit Center
- (c) SAMA
- (d) Stock Exchange

**8 - What coupon frequency in the Kingdom is used for government development bonds issued by the Ministry of Finance in the Kingdom?**

- (a) Quarterly
- (b) Semi-annual
- (c) Annually
- (d) Two years

# 4 Economic Framework

## Introduction

### 4.1 Economics: gross domestic product

- 4.1.1 Measuring gross domestic product
- 4.1.2 GDP and GNP
- 4.1.3 Nominal and real GDP

### 4.2 Economic fluctuations: unemployment and inflation

- 4.2.1 Business cycles
- 4.2.2 Business cycle indicators
- 4.2.3 Unemployment
- 4.2.4 Inflation

### 4.3 Fiscal policy

- 4.3.1 Fiscal policies

### 4.4 Money and the banking system

- 4.4.1 Definitions of money supply
- 4.4.2 Interest rates
- 4.4.3 Monetary policy

### 4.5 Foreign exchange and the global economy

- 4.5.1 Foreign exchange market
- 4.5.2 Exchange rate regimes
- 4.5.3 Determinants of currency value
- 4.5.4 Balance of payments

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.



# INTRODUCTION

Due to the importance of economic analysis, this chapter is exclusively devoted to providing an overview of the macro economy and government policy. The international aspects are also detailed in the context of the foreign exchange market and a country's balance of payment accounts.

The ultimate objective of fundamental analysis is to estimate the earnings and dividend prospects of the firm. The macroeconomic environment affects all firms, although some are affected to a larger extent than others. Security analysts must monitor those macroeconomic variables that best describe the state of the economy and understand how these variables are influenced by government actions. The government uses two broad methods of intervention to manage the economy. These are Fiscal Policy (the use of government expenditure and taxes) and Monetary Policy (adjustment of money supply). Issues relating to each of these policies are discussed in this chapter. The objectives of the nation's economic policy are to protect the purchasing power of the nation's currency (manage inflation), encourage conditions favorable to sustainable economic growth, maintain low unemployment rates, and foster a reasonable balance in transactions with other nations over the long run. This chapter provides an overview of these economic ideas and issues.

## 4.1 ECONOMICS: GROSS DOMESTIC PRODUCT

### 4.1.1 MEASURING GROSS DOMESTIC PRODUCT

**Learning Objective 4.1.1** – *Understand* Gross Domestic Product (GDP), how it is measured and its significance

A nation's standard of living is a measure of its economic performance. Measuring economic performance enables us to monitor changes in a nation's economic activity and to compare its level of activity with that of other nations. These measures allow policymakers to 'check the pulse' of an economy. Economists rely on four important measures of economic activity: gross domestic product, inflation, interest rates, and unemployment. Periodic release of information relating to these variables can affect stock and security prices.

Gross Domestic Product (GDP) is a broad measure of a nation's economic output. GDP measures the current value of all final goods and services produced for sale in an economy in a year. Ideally, GDP will increase at a steady pace from year to year, indicating constant expansion in the quality and quantity of goods and services available to the population. Countries such as the United States, Japan, and United Kingdom measure their GDP in trillions of dollars. Smaller countries such as Switzerland and Luxembourg have much smaller total GDP, but still have a high standard of living.

**There are three different but equivalent approaches to measuring GDP:**

- 1 - The total spending on goods and services by different groups - households, businesses, government and foreigners.
- 2 - The total of production in different industries - agriculture, mining, manufacturing...etc.
- 3 - The total of income earned by different groups in the form of wages, profits...etc.

The most widely used among the three is the spending approach. To measure GDP through spending, simply add up total spending on goods and services produced in a nation during a given period.

Gross Domestic Product = Consumption + Fixed Investment  
+ Inventory Investment + Government Purchases + Exports - Imports.

Increases in GDP imply an expanding economy, and presumably one in which firms can profitably operate, reflected by higher security prices.

### 4.1.2 GDP AND GNP

**Learning Objective 4.1.2** – *Know* the differences between Gross Domestic Product and Gross National Product

Gross National Product (GNP) is a related measure of economic activity and differs from GDP by including foreign income earned by citizens and excluding income earned by foreigners in the domestic economy. Although GNP differs from GDP, the impact of overseas investment income is not sufficiently significant to prevent both measures telling a similar story regarding the health of the economy.

### 4.1.3 NOMINAL AND REAL GDP

**Learning Objective 4.1.3** – *Know* the differences between nominal GDP and real GDP

In measuring GDP over time, it could be the case that the growth in GDP is occurring because the economy is producing a larger output of goods and services and/or that goods and services are being sold at higher prices. The latter could simply be due to inflation. As a result, if inflation were significant, it would be desirable to remove the impact of inflation and look at GDP changes based purely on the output of goods and services. Economists call this real GDP, which is GDP excluding the impact of inflation, based on money with the same purchasing power.

The GDP measure that incorporates both the production of goods and services and the impact of higher prices (inflation) is often referred to as the nominal GDP.

## 4.2 ECONOMIC FLUCTUATIONS: UNEMPLOYMENT AND INFLATION

### 4.2.1 BUSINESS CYCLES

**Learning Objective 4.2.1** – *Understand* what is meant by the 'Business Cycle', its effects and various stages:

- Effect on cyclical companies
- Effect on defensive companies
- Prosperity, recession, depression and recovery

All economies go through recurrent phases of expansion and contraction with varying degrees of severity and for differing lengths of time. Such periodic booms and busts are referred to as business cycles. The fortunes of the majority of firms tend to follow these cycles of the waxing and waning of economic activity - such companies are referred to as cyclical companies. However, there are some companies, termed defensive companies that are immune to or barely sensitive to the business cycle. Examples of defensive industries are food producers, pharmaceuticals and utilities.

The business cycle can be described by its four distinct stages: prosperity, recession, depression, and recovery. An expansionary phase is characterized by recovery followed by prosperity whereas in a contractionary phase the economy goes through a recession, which may prolong to a depression. A recession is said to occur when gross domestic product (GDP) declines for two consecutive quarters. A depression is an extremely long and severe recession in which GDP falls and unemployment rises dramatically. A slowdown need not result in a depression if a recovery gets under way before the economy tumbles too far down. These periods of expansion and contraction can vary from several months to several years.

### 4.2.2 BUSINESS CYCLE INDICATORS

**Learning Objective 4.2.2** – *Know* the main leading, coincident and lagging indicators that assist economists to identify the state of the Business Cycle

The task of the analyst is to forecast the stage of the business cycle and make recommendations of the type of securities to invest in. In the recovery stage it would be advisable to invest in cyclical stocks, whereas in the recession stage it would be prudent to invest in defensive stocks.

Since these business cycles seem to be recurrent, economists look at key variables in the economy that may help in predicting the cycle. These variables are termed economic indicators and are divided into categories. Leading indicators are those that precede the cycle while coincident or lagging indicators move jointly with or lag the cycle. From experience and hindsight the following list of indicators has been identified and is widely used (especially in the U.S).

## **Leading Indicators**

- Average weekly hours of production workers.
- Initial claims for unemployment insurance.
- Manufacturer's new orders.
- Vendor performance - slower deliveries diffusion index.
- New orders for non-defense capital goods.
- New private housing units authorized by local building permits.
- Yield curve spread between 10 year T – bond yield and federal funds rate.
- Stock prices, based on 500 common stocks (in the U.S the famous S & P 500).
- Money supply figures (particularly M2).
- Index of consumer expectations.

## **Coincident Indicators**

- Employees on nonagricultural payrolls.
- Personal income less transfer payments.
- Industrial production.
- Manufacturing and trade sales.

## **Lagging indicators**

- Average duration of unemployment.
- Ratio of trade inventories to sales.
- Change in index of labor cost per unit of output.
- Average prime rate charged by banks.
- Commercial and industrial loans outstanding.
- Ratio of consumer installment credit outstanding to personal income.
- Change in consumer price index for services.

Since these include a significant number of variables, it is customary to create a composite index that averages all of the indicators in a given category. Composite indexes of leading indicators are tracked to better predict the possible direction of the economy in the future.

## 4.2.3 UNEMPLOYMENT

**Learning Objective 4.2.3** – *Understand* the significance of unemployment in the economy

Unemployment occurs when individuals within an economy's work force who are actively looking for work cannot find it. A nation's unemployment rate is the percentage of the civilian labor force, defined as people sixteen years of age and older not in school or other institutions who are either working or actively looking for work. Unemployment statistics do not include discouraged workers - those who are no longer seeking jobs.

Unemployment can be a serious problem. Not only are unemployed workers robbed of the opportunity to be productive and earn a living, they also must look to the government for support in the form of unemployment compensation. Additionally, their ability to buy goods and/or services is negatively impacted with the consequent impact on GDP.

Unemployment statistics are carefully monitored. For example, the Bureau of Labor Statistics in the United States releases unemployment statistics on the first Friday of each month. Analysts monitor these releases to carefully evaluate the potential impact on security prices.

## 4.2.4 INFLATION

**Learning Objective 4.2.4** – *Understand* the significance of inflation in the economy

Inflation is a persistent increase in prices. It is generally measured as the percentage change in an index such as the Consumer Price Index (CPI), which looks at increases in the overall level of prices paid for the goods and services typically purchased by consumers. As prices rise, the purchasing power of each unit of the currency is diluted eroding its ability to purchase goods and services.

Unanticipated changes in inflation create operational troubles for firms in executing their planning, costing, and pricing policies. Similarly, consumers, investors and other groups find it difficult to make informed decisions in an environment that is plagued by significant levels of inflation. Unexpected inflation leads to losers and gainers in the economy. If inflation turns out to be higher than expected, recipients of fixed payments, such as those on pension plans, or holders of bonds are likely to be losers, while lenders benefit.

Economists believe inflation to be either demand driven or supply driven.

Demand-pull inflation occurs when consumers want to purchase more goods and services than the economy can produce. As demand outstrips supply, prices are bid up causing inflation. One possible reason for this phenomenon is an expansion of money supply in excess of the rate at which the real economy is growing.

Cost-push inflation occurs when the cost of a key raw material or important inputs – steel, oil, labor - sets off a spiral of rising price for finished goods and services. These rising costs of production are passed on to consumers. For example, cost- push inflation was a serious problem in the 1970s when climbing oil prices caused dramatic increases in the prices of every petroleum-based product from gasoline to plastics.

## 4.3 FISCAL POLICY

Fiscal policy involves changes in government spending, taxes, and transfers. The government can use such changes to influence the economy, with consequent effects on GDP, inflation and unemployment.

### 4.3.1 FISCAL POLICIES

**Learning Objective 4.3.1** – *Understand* the effect of fiscal policy on the economy

- Expansionary policy
- Contractionary policy
- Taxes
- Budget deficit
- Financing the policy

An expansionary fiscal policy is one that increases direct government spending and/or increases transfers and/or decreases taxes. A contractionary fiscal policy is the opposite, brought about by the government reducing direct spending and/or transfers, and potentially also increasing taxes.

Increases in government expenditure stimulate the economy by increasing the aggregate demand for goods and services. Normally, higher expenditure by the government has a cascading or multiplier effect on the economy. This is simply because the government expenditure will in turn stimulate higher expenditure by those in the economy who are the recipients of government funds, and so on. Lowering taxes has a similar effect. Lower taxes should encourage businesses to invest more and consumers to spend more.

A good indicator of the direction of fiscal policy is to examine the magnitude of the budget deficit, defined as the difference between government expenditures and tax revenues. An increase in the budget deficit is indicative of an expansionary fiscal policy, as the stimulant will be provided by higher government expenditure, lower taxes, or both. Budget deficits need to be financed by government borrowing, and this will be reflected by increased issuance of treasury bonds and bills.

There is some debate about whether fiscal policies might have adverse effects on the economy. Some argue that budget deficits lead to higher interest rates (as a result of the need to attract investors to more government borrowing), and these higher interest rates reduce private business investments. Furthermore, some argue that the accumulated debt of the government can place an undue burden of repayment that stifles the economy. In spite of these controversies, fiscal policy has been used extensively in the US and other major economies since the 1950s.

## 4.4 MONEY AND THE BANKING SYSTEM

Money has three functions in the economy. It is a medium of exchange, a unit of account, and a store of value. As a medium of exchange it is used in the economy for transactions involving the buying and selling of goods and services. As a unit of account it provides a yardstick to measure and record economic value. Finally, as a store of value it can be used to transfer purchasing power from the present to the future.

### 4.4.1 DEFINITIONS OF MONEY SUPPLY

**Learning Objective 4.4.1** – *Know* the various definitions of money supply and their use by the central bank

Money is generally meant to include anything that can be used for transaction purposes. There are many different operational definitions of money that are used by the monetary authorities. The narrowest definition of money is termed M1. M1 is the currency in circulation plus the deposits in checking accounts and traveler checks. M2 is defined as M1 plus time deposits such as savings accounts. As the definition widens to include other assets considered to be near money, there are other possibilities such as M3 and M4. The central banks throughout the world monitor these monetary aggregates, particularly M1 and M2, and potentially manipulating them to achieve certain economic objectives.

### 4.4.2 INTEREST RATES

**Learning Objective 4.4.2** – *Know* the effect of changes in interest rates on stock prices, business investment, domestic expenditure and the economy

The level of interest rates is a key determinant of security prices and economic activity. Security/prices and interest rates tend to be inversely related: security prices declining with increases in the interest rate and vice versa. High interest rates adversely affect business investment decisions and consumption expenditure on homes and durables such as automobiles and refrigerators, which are normally financed by borrowing. High interest rates therefore tend to be contractionary.

### 4.4.3 MONETARY POLICY

**Learning Objective 4.4.3** – *Understand* the characteristics of monetary policy and the tools used by the Central Bank to influence money supply:

- Open market operations
- The discount rate
- Reserve requirements

The legislative and executive branches of the government determine fiscal policy; monetary policy is carried out by the Central Bank. Monetary policy centers on altering money supply to impact interest rates. An increase in money supply will tend to drive down interest rates and stimulate investments and consumption, thus helping the economy to expand. However, some economists believe that increases in money supply only leads to inflation in the long run.

**The central bank has three major policy tools to influence money supply:**

- i. Open market operations
- ii. The discount rate
- iii. Reserve requirements

Open market operations are the most widely used monetary policy tool and it involves the purchase and sale of government securities in the open market to increase the availability of money and credit, the central bank buys government securities thus injecting cash into the system. To tighten money and credit flows, the central bank sells securities, thereby siphoning cash out of the system. Open market operations are undertaken by SAMA in Saudi Arabia.

The discount rate is the interest rate at which the central bank lends money to banks. Depository institutions often need to borrow money from central banks to cover temporary deposit drains. These are sometimes called 'discount window' loans. A change in the discount rate can either inhibit or encourage financial institutions' lending and investment activities by making it more or less expensive for them to obtain funds. An increase in the discount rate, for example, discourages banks from borrowing money from the central bank, thus restricting the ability of banks to create money through loans to consumers and businesses.

The reserve requirement is the fraction of deposits that commercial banks are required to hold as reserves with the central bank. Recall, that M1 is defined as currency in circulation plus deposits. An increase in the reserve requirement will mean that commercial banks will be able to support a lower level of customer deposits thereby decreasing money supply. However, changes in the reserve requirements are used very infrequently as a policy tool.

## **4.5 FOREIGN EXCHANGE AND THE GLOBAL ECONOMY**

Over the last two decades, business and industry has become more global in nature. Increasingly, competition comes not only from domestic firms but from firms located in other countries. Furthermore, it is estimated that for large firms, more than 40% of sales are outside their country of domicile. The state of the global economy and the sensitivity of a firm's sales and profits to changes in economic activity will be important determinants of value. Political developments in various parts of the world can affect firms' performance, for example the expansion of the Euro trading block with a common currency has had a profound influence on prospects for US firms. Two important indicators of international trade and finance are the country's balance of payments accounts and the exchange rate behavior of the local currency.

## 4.5.1 FOREIGN EXCHANGE MARKET

**Learning Objective 4.5.1** – *Understand* the characteristics of the Foreign Exchange Market and the manner in which exchange rates are quoted

- Spot rates
- Forward rates
- Bid - offer spreads

An important factor that affects firms and businesses is the value of their currency relative to those of other countries. This relative value is determined in the foreign exchange market or currency market. In the market the participation is dominated by the commercial banks, buying and selling currencies based on the economic fundamentals of individual countries. As the value of the domestic currency appreciates, the international competitiveness of domestic firms tends to erode. Central banks intervene in the currency markets to maintain the value of their currency within reasonable limits. In Saudi Arabia for example, SAMA stands ready to buy and sell US dollars at a price of SR 3.75, thus pegging the value of the riyal to the dollar.

There are two types of transaction conducted on the foreign exchange market:

- Spot transactions are immediate currency deals that are settled within two working days.
- Forward transactions involve currency deals that are agreed for a future date at a rate of exchange fixed now.

Exchange rates are quoted against the US dollar and can be expressed in direct or indirect terms. An example of a spot rate quote is shown below.

Direct Quote for the Euro  $\longrightarrow$  1.21 \$/€

Indirect Quote for the Euro  $\longrightarrow$  0.826 €/£

The indirect quote is simply the inverse of the direct quote. Most currencies are quoted against the dollar on an indirect basis in the currency markets. From market quotes it is easy to compute cross rates, or the value of one currency relative to another without involving the dollar. For instance, given the quote for the euro above and the value of the British pound of 1.65 \$/£, we can express the following:

Direct quote for the euro in terms of the pound is 0.733 £/€, and the Indirect quote for the euro in terms of the pound is 1.364 €/£.

Banks are the major dealers in the currency markets, standing ready to buy or sell the currencies that they deal in. As dealers they quote two prices: the bid which is the price at which they buy, and the ask which is the price at which they sell.

A typical quote by a Saudi Bank for the US dollar is shown below:

| Bid        | Ask        |
|------------|------------|
| 3.74 SR/\$ | 3.76 SR/\$ |

The bank is stating that it stands ready to buy dollars at SR 3.74 and sell dollars at SR 3.76. The difference SR 0.02 represents the 'bid ask' spread, and the bank's potential profit.

In addition to trading in the spot market, banks also make a market in forward trading -quoting prices today for deferred delivery in the future. The quotes on the forward market state how much must be added to, or subtracted from, the present spot rate. These are either premiums to the spot rate, or discounts to the spot rate.

The relationship between the spot exchange rate and forward exchange rate between two currencies is simply given by the differential between their respective nominal interest rates over the term being considered. The relationship is purely mathematical and has nothing to do with market expectations of the likely course that the exchange rate may take given knowledge of other factors.

## 4.5.2 EXCHANGE RATE REGIMES

**Learning Objective 4.5.2** – *Know* the differences between fixed and floating exchange rate systems

A country can either follow a fixed (or pegged) exchange rate system or a floating rate system. In a pegged system, the central bank keeps the value of the domestic currency at a fixed rate of exchange against another currency. This requires the central bank to stand ready to buy or sell the peg currency at the stated pegged price.

In a freely floating rate system, the value of the currency is allowed to be determined by the forces of demand and supply in the international currency markets. However, even under floating rate regimes, central banks may intervene by buying or selling to manipulate the value of the currency. This combination of floating rate plus central bank intervention is commonly referred to as a managed float.

## 4.5.3 DETERMINANTS OF CURRENCY VALUE

**Learning Objective 4.5.3** – *Know* the factors that determine the value of a currency:

- Supply and demand
- Inflation
- Interest rates
- Economic performance

The value of a currency is predominantly determined by the relative demand and supply for that currency. Demand and supply are in turn determined by a host of economic factors. The demand for dollars for example will depend on foreigner's demand for US goods or the demand to invest in dollar denominated assets. Conversely, the supply of dollars will be determined by American demand for foreign goods and foreign exchange denominated assets. Inflation has a profound influence on the value of a currency. Inflation tends to erode the value of the currency and cause the currency to depreciate. In contrast, an increase in interest rates will tend to appreciate the currency. An increase in economic performance (as measured by GDP) will help to appreciate the value of the currency.

## 4.5.4 BALANCE OF PAYMENTS

**Learning Objective 4.5.4** – *Understand* basic details of the Balance of Payments accounts and their significance in the economy:

- Current account
- Capital account
- Surplus
- Deficit
- Liquidity

The balance of payments accounts record all transactions that take place between a country and the rest of the world. The accounts are divided into two broad categories. The first category, called the current account, shows the country's exports and imports of goods and services. A current account deficit means that the country is importing more than it exports. A current account surplus means that the country is exporting more than it imports. The second category, called the capital account, records the investment flows into and out of the country. Investments could be either in financial assets or in real assets, with the latter referred to as foreign direct investments. When foreigners invest in the domestic economy, it is an inflow of foreign currency, conversely when domestic residents invest abroad; it is an outflow of foreign currency. If the investment inflow exceeds the investment outflow, it is a surplus in the capital account. The individual parts of the balance of payments accounts could be in surplus or deficit, however it would be worrying if the deficit in one category is not matched by a surplus in the other. Economies that have persistent deficits in both accounts are likely to face liquidity problems in the future, with adverse effects on firms and businesses.

As an example, the US has historically run a current account deficit against Japan, (i.e. importing more from Japan than it exports to Japan), but this has been offset by a capital account surplus (i.e., Japanese investing more in the US than the US investing in Japan), thus keeping the overall accounts approximately in balance.

As a contrary example, consider the case of Malaysia during the East Asian crisis of the 1990's. Malaysia was suffering from a current account deficit precisely at a point when foreigners were withdrawing investment funds from Malaysia. This put undue pressure on the balance of payments system, finally leading to a devaluation of the Malaysian Ringgit and a prolonged contraction of the economy.

# Review Questions: Economic Framework

Choose the correct answer for each of the following questions:

- 1- Real gross domestic product or real GDP:**
  - (a) Is aggregate output.
  - (b) Is the total production of final goods and services
  - (c) Grows during an expansion.
  - (d) Is all of the above
  
- 2- A recession leads to all of the following except:**
  - (a) Higher unemployment.
  - (b) Reduced output.
  - (c) Reduced income and living standards.
  - (d) Higher employment.
  
- 3- Periods in which output and employment are falling are known as:**
  - (a) Recessions.
  - (b) Booms.
  - (c) Expansions.
  - (d) Deflations.
  
- 4- Monetary policy attempts to stabilize the economy by changes in:**
  - (a) The interest rate.
  - (b) Government spending
  - (c) Personal taxes
  - (d) Business taxes.
  
- 5- Fiscal policy attempts to stabilize the economy during the business cycle through:**
  - (a) Changes in the inflation rate.
  - (b) Changes in the quantity of money or the interest rate.
  - (c) Changes in tax policy or government spending.
  - (d) Discretionary regulation of profits and wages.
  
- 6- Gross Domestic Product is defined as:**
  - (a) Consumer spending + government purchases + financial spending + exports – imports.
  - (b) Consumer spending + government transfers + investment spending + exports – imports.
  - (c) Disposable income + taxes + investment spending + exports + imports.
  - (d) Consumer spending + government purchases + investment spending + exports – imports.

- 7- Which of the following is a chief measure of economic growth over time?**
- (a) Inflation
  - (b) Increases in real per capita GDP
  - (c) Decline in real interest rates
  - (d) Increases in the available labor supply
- 8- The exchange rate is:**
- (a) The rate at which goods are sold in a country.
  - (b) The interest rate differential between two countries.
  - (c) The value of one currency in terms of another.
  - (d) The growth rate differential between two countries.
- 9- When the value of the dollar changes from £0.5 to £0.75, then the pound has \_\_\_\_\_ and the dollar has \_\_\_\_\_.**
- (a) Appreciated; depreciated
  - (b) Depreciated; appreciated
  - (c) Appreciated; appreciated
  - (d) Depreciated; depreciated
- 10- If the Euro depreciates relative to the Saudi Riyal:,**
- (a) European goods will become less expensive in Saudi Arabia.
  - (b) Saudi petrochemicals will become more expensive in Europe.
  - (c) Saudi petrochemicals will become cheaper in Europe.
  - (d) Both A and B of the above.

# 5 Financial Statements: Basics

## Introduction

### 5.1 Financial statement analysis: basic concepts

- 5.1.1 The balance sheet
- 5.1.2 The income statement
- 5.1.3 The cash flow statement
- 5.1.4 Regulatory requirements

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter gives an overview of financial statements in order to provide candidates with a working knowledge of various financial reports that form the basis for many investment analysis and decision making.

## 5.1 FINANCIAL STATEMENTS ANALYSIS: BASIC CONCEPTS

### 5.1.1 THE BALANCE SHEET

**Learning Objective 5.1.1** – *Understand* the purpose and main constituents of the Balance Sheet:

- Current Assets
- Fixed Assets
- Current Liabilities
- Long Term Liabilities
- Shareholders' Equity

The balance sheet is a position statement of the company, showing all it owns (its assets) and all it owes (liabilities and owner's equity), at a particular point in time. The basic equation that identifies the balance sheet is:

$$\text{Total Assets} = \text{total liabilities} + \text{shareholders' equity}$$

It is useful to think of the right hand side of the equation (liabilities and shareholders' equity) as the sources of funds and the left hand side (assets ) as the uses to which the funds have been put.

The total assets on the balance sheet are subdivided into current assets and fixed assets.

Current Assets include those assets, which are either cash or near cash. Near cash refers to assets that will be transformed into cash in the normal course of business activity in the near future, usually within one year. Inventory, for example, will be sold and turned into cash. There are five types of assets that are typically treated as current assets: cash, marketable securities, accounts receivable, inventories and prepaid expenses.

- Cash, needs little explanation, it includes money held as petty cash and deposits on demand in the bank.
- Marketable securities are temporary investments of surplus cash that is not required immediately. Primarily these investments are in relatively safe short- term securities such as government T-bills or commercial paper. Surplus cash invested in marketable securities generates a small but significant income with very low risk.
- Accounts Receivable is amounts not yet collected from customers for goods already sold and delivered. It is common practice to give customers credit for a period of time between one to three months within which to pay.

- **Inventories:** Firms carry inventories of different types. Finished goods inventories are ready to be shipped and delivered to customers, work in progress is not yet ready to be shipped, and raw materials are not yet used in the production process. For finished goods and work in progress, the cost of labor and other costs incurred during production are included. Inventories can be valued either at the lower of cost and net realizable value.
- **Prepaid Expenses:** Firms make advance payments for a variety of services such as insurance, advertising, rent etc., the benefit of which will be received only in the future. Because they are advance payments they are reflected as short-term assets, which will be consumed in the near future.
- **Fixed Assets** are long lived assets which will be used in the production process over a number of years. Typically these include such items such as land, buildings, and machinery and they are commonly referred to as Property, Plant and Equipment. These are alternatively referred to as the tangible fixed assets. Because tangible fixed assets are used over a number of years, the accepted practice is to value them at their historical acquisition cost and then allocate this cost to the periods over which the firm benefits from them. This measure of usage, or wearing out is known as depreciation. The fixed assets appear in the balance sheet at historical cost less the accumulated depreciation to date-this is called the net book value. Depreciation methods used by companies vary from straight line (depreciating the asset uniformly over the useful life) to an accelerated form of depreciation, where a fixed percentage is applied to the book value of the fixed asset. This results in a greater depreciation charge in the early years, when the book value is more substantial. Land is one fixed asset that is not subject to depreciation.

There is also an intangible category of fixed assets that is intended to capture the value of assets that do not have physical attributes but constitute value to the company. Examples include patents that give exclusive rights to produce and market specific goods, and goodwill which is the excess paid over the value of net fixed assets of acquired companies.

Example 5 – 1 below shows a fictional balance sheet for Hypo Corporation at the end of 2010 with comparable figure at the end of 2009. Hypo had S.R 5 million of intangible fixed assets in its balance sheet at the end of 2010. The tangible fixed assets had a historical value of SR 445 million with an accumulated depreciation of SR 130 million, giving a net book value of S.R 315 million. The total assets of HYPO are the sum of its current and fixed assets which was SR 710 million in 2010.

We now shift our attention to the liability side of the balance sheet which is made up of the liabilities of the company and ‘Stockholders equity’ is what will be left over for shareholders if the assets of the company are liquidated at their book values and all liabilities paid out. However, this is a hypothetical notion as assets are unlikely to be sold at book values in the event of liquidation. In a similar way to assets, liabilities are subdivided into current liabilities and long-term liabilities.

Current Liabilities are debts that will fall due for payment in the near future, generally over the next year. In a financially healthy company one would expect current assets to exceed its current liabilities and the net figure for current assets less current liabilities is referred to as the net working capital of the firm.



Current liabilities typically include accounts payable, notes payable, accrued expenses and taxes payable.

- Accounts Payable is the amount that the company owes its suppliers from whom goods and services have been purchased on credit. Just as the company grants credits to its customers it typically receives credit from its suppliers.
- Notes Payable represents money owed to lenders, such as repayment of loans to banks and bondholders falling due during the year.
- Accrued expenses constitute other unpaid expenses at the balance sheet date, such as outstanding salaries and wages to employees, interest payments to banks and bondholders, insurance premiums and similar items.
- Taxes payable represent taxes owed to the government and are normally presented as a separate category of current liability to reflect its relative importance.

### Example 5.1

| Assets (Million SR)                |            | Liabilities |  | (Million SR) |            |
|------------------------------------|------------|-------------|--|--------------|------------|
| Current Assets                     | 2010       | 2009        | Current Liabilities                                    | 2010         | 2009       |
| Cash                               | 15         | 10          | Accounts Payable                                       | 80           | 82         |
| Marketable Securities              | 25         | 20          | Notes Payable  | 57           | 59         |
| Accounts Receivable                | 144        | 140         | Accrued Expenses                                       | 34           | 36         |
| Inventories                        | 200        | 186         | Income Taxes Payable                                   | 19           | 17         |
| Prepaid Expenses                   | 6          | 4           |  |              |            |
| <b>Total Current Assets</b>        | <b>390</b> | <b>360</b>  | <b>Total Current Liabilities</b>                       | <b>190</b>   | <b>194</b> |
| <b>Fixed Assets</b>                |            |             |  |              |            |
| Land                               | 40         | 40          | <i>Long Term Liabilities</i>                           |              |            |
| Buildings                          | 165        | 160         | Bonds 8% due 2021                                      | 150          | 150        |
| Machinery                          | 240        | 211         | <b>Total Liabilities</b>                               | <b>340</b>   | <b>344</b> |
| <b>Total Tangible Fixed Assets</b> | <b>445</b> | <b>411</b>  | <b>Stockholders' Equity</b>                            |              |            |
| Less: Accumulated Depreciation     | 130        | 110         | Preferred Stock (50 par, SR5 cumulative)               | 12           | 12         |
| Net Fixed Assets                   | 315        | 301         |  |              |            |
| Intangible Fixed Assets            | 5          | 5           | Common stock (SR1 par value, 20m in 2010, 18m in 2009) | 20           | 18         |
|                                    |            |             | Additional Paid in Capital                             | 85           | 76         |
|                                    |            |             | Accumulated Retained Earnings                          | 253          | 216        |
| <b>Total Assets</b>                | <b>710</b> | <b>666</b>  | <b>Total Liabilities + Equity</b>                      | <b>710</b>   | <b>666</b> |

Summing all these items, total current liabilities for Hypo amounted to SR190 million in 2010, considerably less than its current assets of SR390 million.

Long Term Liabilities are debts that fall due after more than one year, and are nearly always principal amounts on long term loans taken from institutions such as banks and from individual bondholders. For Hypo, the only long-term liability is the SR150 million of 8% coupon rate bonds issued in the past and which mature in 2021. Remember that a bond is simply a promissory note that the firm issues to lenders, which specifies the terms of the loan in terms of interest payment, repayment date, and any other conditions and stipulations that may accompany the loan.

Total liabilities of Hypo including both current and long term components stood at SR340 million in 2010. Stockholders' Equity shows the shareholders' interest in the company. The Stockholders' Equity typically consists of three items, the capital stock, additional paid in capital and retained earnings. The first of these, the capital stock is potentially sub-divided into preferred stock and common stock.

**Preferred stock** is one class or type of shares issued by corporations. While these shares represent ownership rights just as common shares do, as its name suggests preferred shares precede common shareholders both in terms of dividend payments and proceeds in the event of liquidation. Additionally, preferred shares generally do not have voting rights and hence no say in the manner in which the company is run. Preferred shares for Hypo are SR5 cumulative, which means that each share will receive SR5 in dividends per year and this entitlement will accumulate if the dividend payment is skipped in a particular year. Both the skipped dividends and the current dividend for preferred shareholders must be paid before any dividends can be paid to common shareholders.

**The Common Stock** represents the contribution made by shareholders and is split into a par value amount and an additional paid in capital amount. This is an accounting practice and has little real significance. For example a SR10 par value share issued by a corporation for SR50 will have SR40 recorded under the additional paid in capital account to reflect the excess paid over the par value.

The net profit or net income that the company earns can either be paid out as dividends to its shareholders or reinvested in the company. The amount reinvested each year is accumulated in the retained earnings account. The accumulated retained earnings account, therefore, shows how much of past and current profits have been reinvested in the firm. The accumulated retained earnings in 2010 for Hypo were SR253 million. To see how this account is constructed, we can look at the bottom of the income statement in Example 5 – 2, where the accumulated retained earnings accounts are shown. The 2009-year end balance in the account was SR216 million, which is also the beginning balance for 2010. To this, simply add the net profits earned (SR64 million) by the corporation and deduct the dividends paid (SR26.5 million) to arrive at the year-end balance of SR. 253 million in 2010.

The value of total liabilities and shareholders' equity equals SR710 million, which matches the total assets on the left hand side of the balance sheet

## 5.1.2 THE INCOME STATEMENT

**Learning Objective 5.1.2** – *Understand* the purpose and main constituents of the Income Statement (Profit and Loss Account):

- Net Sales
- Expenses
- Operating Profit
- Interest Expenses

The Income Statement is an accounting report describing all the activities of the firm over a specific period of time (normally one year). It is sometimes also called the profit and loss statement. The basic equation that underlies the income statement is:

Revenues - Expenses = Income (if positive) or Loss (if negative)

The income statement provides a record of the firm's operations over the course of the year in terms of revenues received from sales and the corresponding expenses incurred. Example 5 – 2 shows the income statement for Hypo Corporation for the 2010 year, and comparative figures for 2009.

Net Sales ( which is gross sales minus any sales returns and customers discounts) the first item on the income statement is the revenue earned from the sale of the company's products and services. For Hypo, sales increased from SR750 million in 2009 to SR820 million in 2010.

Expenses are costs incurred during the year from the firm's normal operations of production, marketing, and sales of its goods and services.

- Cost of goods sold represents the largest cost and includes wages and salaries, raw material costs, direct overhead expenses, and any other costs that go directly into the production process.
- Depreciation, though a non-cash expense, is deducted to reflect the 'using' up of fixed assets in the course of production.
- Selling and administrative expenses are normally indicated separately to enable the reader to assess the extent of marketing, advertising, sales commissions, executive salaries, and office expenses.

Operating profit is the surplus created from the principal operations of the company. In the absence of interest payments and taxes this would be available to the shareholders. This is sometimes also called Earnings before Interest and Taxes or EBIT.

Interest expenses are payments made to bondholders that have to be made regardless of whether the firm is making a profit or not Hypo had SR150 million of bonds outstanding at an interest rate of 8% requiring payments of SR12 million each year to service its debt. Deducting interest expenses from operating expenses gives the base on which the company has to pay corporate taxes. Hypo paid SR29 million in taxes on a taxable profit of SR93 million, which represented an average tax rate of 31%. Deducting all expenses and taxes from revenues we arrive at the bottom line - Net Income. Hypo earned SR64 million in 2010 after meeting all its obligations. At the base

of the income statement, a figure is presented for the Earnings Per Share (EPS). This is essentially the year's net income divided by the number of common shares.

As there are 20 million shares outstanding, Hypo's Earnings per Share (EPS) would be expected to be SR3.20 (SR64 million divided by 20 million shares). However, not all this SR64 million earnings went to the common shareholders. As can be seen in the accumulated retained earnings account, preferred shareholders received dividends of SR1.5 million in total and the EPS for the common shareholders was SR3.13 (SR64 million less SR1.5 million = SR62.5 divided by 20 million shares = SR3.125 rounded up to SR3.13). The Accumulated Retained Earnings Account at the foot of the Income Statement shows that a total of SR26.5 million was paid out in dividends leaving SR37.5 to be retained within the firm. The SR26.5 million is made up of the SR25 million dividends to the common shareholders, plus SR1.5 million to the preferred shareholders. Dividends per common share amounted to SR1.25 (SR25 million divided by 20 million shares).

| <b>Example 5.2</b>   |             |             |
|--|-------------|-------------|
| <b>Income Statement – Hypo Corporation, 2009 and 2010.</b>               |             |             |
| <b>(SR Million)</b>  | <b>2010</b> | <b>2009</b> |
| <b>Net Sales</b>   | <b>820</b>  | <b>750</b>  |
| <b>Expenses</b>  |             |             |
| Cost of Goods Sold   | 560         | 520         |
| Depreciation   | 30          | 25          |
| Selling & Administrative Expenses  | 125         | 120         |
| Operating Profit   | 105         | 85          |
| Interest Expense   | 12          | 12          |
| Income before Taxes  | 93          | 73          |
| Taxes  | 29          | 20          |
| <b>Net Income</b>  | <b>64</b>   | <b>53</b>   |
| Common Shares Outstanding  | 20          | 18          |
| Earnings Per Share of Common Stock (earnings net of preferred dividends) | SR 3.13     | SR 2.8      |
| Common Dividends per share   | SR 1.25     | SR 1.25     |
| Market Price per Common Share  | SR 26.50    | SR 24.10    |
| <b>Accumulated Retained Earnings Account</b>                             |             |             |
| Year Beginning Balance   | 216         | 187         |
| Net Income   | 64          | 53          |
| <b>Less:</b>   |             |             |
| Dividends to Preferred   | 1.5         | 1.5         |
| Dividends to Common  | 25          | 22.5        |
| Year Ending Balance  | 253*        | 216         |

\*Figures have been rounded.

## 5.1.3 THE CASH FLOW STATEMENT

**Learning Objective 5.2.1** – Understand cash flow statements, their purpose and main constituents

Cash flow statements summarize the cash received and paid by a company over the course of their accounting period, usually a year.

The statement of cash flows for ABC Corp. for the year 2010 is shown in Example 5 – 3 below:

| <b>Example 5.3</b>                                  |                       |
|---|-----------------------|
| <b>Statement of Cash Flows – ABC Corp</b>           |                       |
|   | 2010<br>(SR millions) |
| Cash flows from operating activities                |                       |
| (+) Earnings after tax                              | 10                    |
| (+) Depreciation expenses                           | 8                     |
| (-) Changes in working capital Requirement          | (14)                  |
| <b>A. Net cash Provided by operating activities</b> | <b>4</b>              |
| Cash Flows from Investing Activities                |                       |
| (+) Sale of Fixed assets                            | 2                     |
| (-) capital Expenditures and Acquisitions           | (12)                  |
| <b>B. Net cash from investing activities</b>        | <b>(10)</b>           |
| Cash Flows from financing activities                |                       |
| (+) Increase in long term borrowing                 | 12                    |
| (+) Increase in short term borrowing                | 1                     |
| (-) long term debt repaid                           | (8)                   |
| (-) dividend Payments                               | (3)                   |
| <b>C. Net cash Flow from Financing Activities</b>   | <b>2</b>              |
| <b>D. Total net Cash Flow (A+B+C)</b>               | <b>(4)</b>            |
| <b>E. Opening Cash</b>                              | <b>12</b>             |
| <b>F. Closing Cash (E+D)</b>                        | <b>8</b>              |

The statement of cash flows is segregated into the three types of activities by a firm.

*Cash flow from operating activities* relate to the primary functions of the firm, such as sales, cost of sales, direct expenses, and changes in working capital.

*Cash flow from investing activities* relate to the acquisition and sale of assets, such as plant and equipment, land, etc.

*Cash flow from financing activities* relate to borrowing both long and short term and sale or repurchase of stocks. This category also includes dividend and interest payments.

Sales, changes in accounts receivable, changes in accounts payable, etc. would be reflected in the cash flow from operations. The purchase of an asset such as a machine would be shown as a negative item in the investing cash flow type. Borrowing or repayment of existing loans would be considered as a financing activity.

## 5.1.4 REGULATORY REQUIREMENTS

**Learning objectives 5.3.1** – *Know* the content of financial reports of listed companies in Saudi Arabia

Companies, specially, listed companies are required to issue periodic reports to their shareholders (quarterly, annually). The responsibilities of financial statements preparation rests with the company's management. The compliance of companies with reporting requirements in Saudi Arabia is monitored by the ministry of commerce, Saudi Association of Certified Public Accountants (SOCPA), and the Capital Market Authority (CMA)

The annual reports include:

- 1 - Management Discussion and Analysis (MDA) which generally discuss the financial condition of the company and its results of operations. It also addresses liquidity, capital structure and resources, and general economic effects. Some companies also disclose forward looking information (forecasts).
- 2 - The financial statements and supplementary data
- 3 - An auditor opinion (independent external auditor) which is intended to provide assurance to creditors, investors and other users of financial statements.

## Review Problems: Financial Statements Basics

- 1 - A company's income statement includes items covering depreciation, payments to bondholders and taxes. Which of these three items, if any, must be deducted from the net sales figures in order to obtain the operating profit?
- (a) Only the depreciation.
  - (b) Only the bondholder payments and the taxes.
  - (c) All of them must be deducted.
  - (d) None of them must be deducted.
- 2 - Which one of the following items is usually included within the 'cash flow from operating activities' section of a company's cash flow statement?
- (a) Interest payments.
  - (b) Purchase of plant equipment.
  - (c) Sale of land.
  - (d) Changes in working capital.
- 3 - Which of the following activities is not considered among current assets in the balance sheet:
- (a) Cash and marketable securities
  - (b) long-term accounts receivables
  - (c) inventories
  - (d) prepaid expenses
- 4 - Intangible assets are called so, because they:
- (a) have no real value to the company on their own
  - (b) have real value but have no physical attributes
  - (c) have only nominal value to the company
  - (d) have value only if they are disposed - off by the company
- 5 - Takaful Company had the following balances at the end of 2010:
- |                          |         |
|--------------------------|---------|
| Cash                     | 10,000  |
| Net accounts receivables | 35,000  |
| Inventory                | 65,000  |
| Prepaid expenses         | 15,000  |
| Equipment                | 120,000 |
| Common stock             | 130000  |
- The amount of Takaful current assets is:
- (a) SR 255000
  - (b) SR 375000
  - (c) SR125000
  - (d) SR245000



- 6 - Net income for 2010 of Alrashid Company is SR 150000, and the company distributed SR90000 as cash dividends to its common shareholders. If all other things remain equal, by how much does its Stockholders equity increase for the year?**
- (a) SR 150000
  - (b) SR240000
  - (c) SR 60000
  - (d) SR 90000
- 7 - If the total assets for the LIGHT Company are SR 240,000 while its current liabilities is SR 90000. The company's long term liabilities and owners' equity is:**
- (a) SR 240000
  - (b) SR 330000
  - (c) SR 150000
  - (d) No enough information
- 8 - Which one of the following activities can be classified as financing activity in the Cash Flow statement?**
- (a) Purchase of equipment
  - (b) Purchase of treasury stock
  - (c) Sale of trademarks
  - (d) Collection of receivables
- 9 - With respect to financial accounting in Saudi Arabia for Saudi Listed companies, who is responsible for regulating their financial reporting?**
- (a) Saudi Association of Certified Public accountants (SOCPA) only
  - (b) Saudi Association of Certified Public accountants (SOCPA) and Capital market Authority (CMA)
  - (c) Saudi Association of Certified Public accountants (SOCPA) and Capital market Authority (CMA), and the Ministry of Commerce
  - (d) Capital market Authority (CMA) only
- 10 - The responsibility for the proper preparation of company's financial statements rests with:**
- (a) Audit Committee
  - (b) Internal audit department
  - (c) Management of the company
  - (d) External auditors

# 6 Financial Statements Analysis

## Introduction

### 6.1 Analysis of financial statements

- 6.1.1 Common size balance sheet
- 6.1.2 Common size income statement

### 6.2 Ratio analysis

- 6.2.1 Liquidity analysis
- 6.2.2 Leverage ratios
- 6.2.3 Profitability ratios
- 6.2.4 Market value ratios

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

The financial statements are the starting point to asking questions, such as, how well the firm is using its assets, what is the extent of its indebtedness, whether enough liquidity exists to meet its short term liabilities, and how investors value the company. Corporate analysis involves both horizontal and vertical analysis of the financial statements. It is generally known as common size financial statement analysis. Another systematic approach involves computing and interpreting a set of financial ratios from the basic data provided in the balance sheet and the income statement. Common size financial statements are used to compare businesses of different sizes, since it scales the financial statement figures as ratios or percentages of a base amount or figure. There are generally two forms of common size analysis:

- i - The vertical form presents figures for a single year expressed as percentages of a base amount on the balance sheet (e.g. total assets) and on the income statement (e.g. sales).
- ii - The horizontal form of common size analysis is a trend analysis. The accounting numbers for subsequent years are stated as percentage of a base – year amount.

On the other hand financial ratios are classified into four categories relating to:

- i - Liquidity
- ii - Leverage
- iii - profitability and management efficiency
- iv - Market value

## 6.1 ANALYSIS OF FINANCIAL STATEMENTS

Each ratio can be evaluated by comparing it to the value of the ratio for the same firm in prior years. An alternate approach compares the ratios of one firm against its peers in the same industry or to an industry average.

### 6.1.1 COMMON SIZE BALANCE SHEET (VERTICAL AND HORIZONTAL)

**Learning outcome 6.1.1** – *Understand* the purpose and types of common size Balance Sheet:

- Common size balance sheet
- Vertical balance sheet analysis
- Horizontal balance sheet analysis

A common size statement is a useful way to look at individual items as a proportion of total assets on the balance sheet. This is particularly useful when comparing two different firms of disparate size or the same firm over time as its assets change.

Example 6 – 1 shows a common size balance sheet for Hypo Corporation for the year 2010. Note how each item is expressed as a percent of total assets (vertical analysis). At a glance it is easy to see that in 2010, current assets were 54.9% of total assets. Long-term debt can be seen to be

21.1% of the total. An analyst can therefore compare these percentages over time, or against other firms, to identify the strengths and weakness of the firm.

#### Example 6.1

| Assets                             |            |              | Liabilities  |            |              |
|------------------------------------|------------|--------------|--|------------|--------------|
| Current Assets                     | 2010       | %            | Current Liabilities                                    | 2010       | %            |
| Cash                               | 15         | 2.0%         | Accounts Payable                                       | 80         | 11.3%        |
| Marketable Securities              | 25         | 3.5%         | Notes Payable  | 57         | 8.0%         |
| Accounts Receivable                | 144        | 20.2%        | Accrued Expenses                                       | 34         | 4.8%         |
| Inventories                        | 200        | 28.2%        | Income Taxes Payable                                   | 19         | 2.7%         |
| Prepaid Expenses                   | 6          | 0.9%         |  |            |              |
| <b>Total Current Assets</b>        | <b>390</b> | <b>54.9%</b> | <b>Total Current Liabilities</b>                       | <b>190</b> | <b>26.8%</b> |
| <b>Fixed Assets</b>                |            |              | <b>Long Term Liabilities</b>                           |            |              |
| Land                               | 40         | 5.6%         | Bonds 8% due 2015                                      | 150        | 21.1%        |
| Buildings                          | 165        | 23.2%        | <b>Total Liabilities</b>                               | <b>340</b> | <b>47.9%</b> |
| Machinery                          | 240        | 33.8%        | <b>Stockholders' Equity</b>                            |            |              |
| <b>Total Tangible Fixed Assets</b> | <b>445</b> |              | Preferred Stock (50 par, \$5 cumulative)               | 12         | 1.7%         |
| Less: Accumulated Depreciation     | 130        |              | Common stock (\$1 par value, 20m in 2004, 18m in 2003) | 20         | 2.8%         |
| <b>Net Fixed Assets</b>            | <b>315</b> | <b>44.4%</b> | Additional Paid in Capital                             | 85         | 12.0%        |
| Intangible Fixed Assets            | 5          | 0.7%         | Accumulated Retained Earnings                          | 253        | 35.6%        |
| <b>Total Assets</b>                | <b>710</b> | <b>100%</b>  | <b>Total Liabilities + Equity</b>                      | <b>710</b> | <b>100%</b>  |

On the other hand the horizontal analysis (trend analysis) states several years' financial data, or several years' financial statements in terms of a base year. The base year equals 100%, with all other years stated in some percentage of this base.

If the example above of Hypo Corporation is extended for the total assets item, for example, to include the five last years, the trend is calculated as follows:

| Year                          | 2010 | 2009 | 2008 | 2007 | 2006 |
|-------------------------------|------|------|------|------|------|
| Total assets (million Riyals) | 710  | 666  | 598  | 547  | 499  |
| %                             | 142% | 133% | 120% | 110% | 100% |

Similarly trend analysis can be performed for all other balance sheet items.

## 6.1.2 COMMON SIZE INCOME STATEMENT (VERTICAL AND HORIZONTAL)

**Learning outcome 6.1.2** – Understand the purpose and types of common size income statement:

- Common size income statements
- Vertical income statement analysis
- Horizontal income statement analysis

Common size statements look at individual items as a percentage of sales in the case of the income statement. This is useful when comparing two different firms of disparate size or the same firm over time as its sales change.

Example 6 – 2 shows the common size income statement for Hypo Corporation for the year 2010. Here individual line items are expressed as a percent of sales. It is readily apparent by looking at Example 6 – 2 that the net profit margin was 7.8%. Managers can use tools like this to monitor costs, for instance by noting that cost of goods sold is 68.3% of sales and selling and administrative expenses were 15.2% of sales.

| <b>Example 6.2</b>   |             |             |
|--|-------------|-------------|
| <b>Commons Size Income Statement – Hypo Corporation, 2010.</b> |             |             |
|  | <b>2010</b> | <b>%</b>    |
| <b>Net Sales</b>   | <b>820</b>  | <b>100%</b> |
| <b>Expenses</b>  |             |             |
| Cost of Goods Sold   | 560         | 68.3%       |
| Depreciation   | 30          | 3.7%        |
| Selling & Administrative Expenses                              | 125         | 15.2%       |
| Operating Profit   | 105         | 12.8%       |
| Interest Expense   | 12          | 1.5%        |
| Income before Taxes  | 93          | 11.3%       |
| Taxes  | 29          | 3.5%        |
| <b>Net Income</b>  | <b>64</b>   | <b>7.8%</b> |

On the other hand the horizontal analysis for the income statement is carried out the same way as for the balance sheet, by stating the income statement data to a base year, equating its numbers to 100%.

In the case of Hypo Corporation, the sales and income figures are extended to include the whole of the last five years, and then trend analysis is carried out.

| <b>Year</b>         | <b>2010</b> | <b>2009</b> | <b>2008</b> | <b>2007</b> | <b>2006</b> |
|---------------------|-------------|-------------|-------------|-------------|-------------|
| Sales (million SR)  | 820         | 750         | 722         | 693         | 650         |
| %                   | 126%        | 115%        | 111%        | 107%        | 100%        |
| Income (million SR) | 64          | 53          | 48          | 39          | 28          |
| %                   | 228%        | 189%        | 171%        | 139%        | 100%        |

## 6.2 RATIO ANALYSIS

### 6.2.1 LIQUIDITY ANALYSIS

**Learning Objective 6.2.1** – *Understand* the main liquidity ratios, their purposes, limitations and the effect of changes in the constituent values

**Learning Objective 6.2.2** – *be able to calculate* the main liquidity ratios

Investors and institutions such as banks considering short-term loans to corporations are most concerned with the ability of the firm to have sufficient liquidity to meet the interest and principal repayment in the near future. Two ratios address this issue.

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{390}{190} = 2.05$$

The current ratio assesses whether the firm has sufficient current assets (which can be converted into cash in the near future) to meet its short-term liabilities. Hypo had current assets which were 2.05 times its current liabilities. A more stringent measure would exclude inventories from current assets, because inventories are likely to be more difficult to convert to cash in the event of distress.

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}} = \frac{190}{190} = 1.00$$

From the creditor's perspective a high value for these ratios implies a greater cushion of support in the event of financial distress, however, for the firm; a large value implies a greater amount of funds tied up as working capital. Again what is important is the magnitude of these ratios relative to the industry average.

### 6.2.2 LEVERAGE RATIOS

**Learning Objective 6.2.3** – *Understand* the main leverage ratios, their purposes, limitations and the effect of changes in the constituent values

**Learning Objective 6.2.4** – *be able to calculate* the main leverage ratios

When a firm raises debt finance, it is said to use financial leverage or 'gearing'. Debt financing creates a fixed interest commitment that has to be met by the firm regardless of its operating performance. Excessive leverage can expose the firm to possible financial distress if operating profits are insufficient to meet interest payments. One measure is the ratio of long-term debt to the total assets of the firm.

$$\text{Debt ratio} = \frac{\text{Long term debt}}{\text{Total assets}} = \frac{150}{710} = .21$$

A related measure is to compute the firm's debt to equity ratio or 'gearing' ratio.

$$\text{Debt to Equity ratio} = \frac{\text{Long Term Debt}}{\text{Equity}} = \frac{150}{370} = 0.41 \text{ or } 41\%$$

Both ratios indicate the extent of use of debt, where higher values imply greater financial leverage. Firms in more mature stable industries can afford and do tend to use more debt, while firms in cyclical and more volatile sectors tend to avoid greater reliance on debt. In case of Hypo, 21% of the assets of the company were financed with long-term debt, and the debt equity ratio shows that the firm uses SR 41 of long-term debt for every SR 100 of shareholder's equity.

Interest payments are made from operating profits earned by the firm. The number of times the interest is covered – the interest cover – measures the extent to which the interest expense is covered by operating income.

$$\text{Interest Cover} = \frac{\text{Operating Income} = 105}{\text{Interest Expense} = 12} = 8.75$$

Hypo had a comfortable earnings cushion of 8.75 times its interest burden.

### 6.2.3 PROFITABILITY RATIOS

**Learning Objective 6.2.5** – Understand the main profitability ratios, their purposes, limitations and the effect of changes in the constituent values

**Learning Objective 6.2.6** – be able to calculate the main profitability ratios

Profitability ratios along with efficiency ratios measure how well the firm is utilizing its assets and other resources. The sales to total assets ratio shows how much of sales is generated by the existing assets, the higher this ratio the higher the effectiveness with which the assets are being used.

$$\text{Sales to Total Assets} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{820}{710} = 1.16$$

For Hypo, the ratio indicates that each Riyal of assets generated SR1.16 of sales.

The net profit margin ratio is a useful measure that shows what proportion of sales finally gets to the providers of equity funds.

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}} = \frac{64}{820} = 0.078 \text{ or } 7.8\%$$

7.8% of sales revenue was available to shareholders of Hypo. A low ratio relative to the industry average would imply that the firm is unable to efficiently control its expenses and the costs of production.

The inventory turnover ratio is another efficiency ratio that shows the ability of management to efficiently manage its inventory. Funds tied up in maintaining inventory is a cost and therefore a high turnover is generally regarded as a positive sign. Many companies are moving towards inventory control systems that minimize funds required for inventory. Just in time inventory techniques are a reflection of such innovations in inventory management methods.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}} = \frac{560}{200} = 2.8$$

On average Hypo turned over its inventories 2.8 times during the year.

Two profitability measures that capture the overall performance of the firm are its return on total assets (ROA) and its return on equity (ROE).

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}} = \frac{64}{710} = 0.09 \text{ or } 9\%$$

9% represents the total return to all providers of capital. This can be interpreted to read as, "the firm generated a profit of SR9 for every SR100 of assets employed". It is useful to look at the sources that drive ROA by decomposing it as follows:

$$\text{ROA} = \frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Net Income}}{\text{Sales}} = 1.16 \times 7 = 9\%$$

The magnitude of ROA can be seen to be in turn determined by the sales to asset ratio and the net profit margin. A target ROA can therefore be achieved by a strategy of a low profit margin accompanied by high sales volume usually used by large grocery store chains, or through low volumes but a high price markup policy, followed by say a specialty designer clothing store.

In the final analysis what is most important to the owners of the company is the profitability achieved by the shareholders of the company. ROE effectively quantifies this idea.

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholder's Equity}} = \frac{64}{370} = 0.173 \text{ or } 17.3\%$$

Hypo's shareholders earned a return of 17.3% on funds contributed by them, which was higher than the total return on assets of 9%. The reason why ROE is higher than ROA can be seen from the decomposition shown below, to tie in the use of leverage. The ratio of assets to equity is referred to as the equity multiplier. The use of leverage (debt) makes assets larger than the equity base and hence levers the ROA upwards.

$$\text{ROE} = \text{ROA} \times \frac{\text{Assets}}{\text{Equity}} = 9.00 \times \frac{710}{370} = 17.3\%$$

The ROE for the firm can be further broken up into the so – called DuPont system.

$$\text{ROE} = \frac{\text{EBIT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{EBT}}{\text{EBIT}} \times \frac{\text{Assets}}{\text{Equity}} \times \frac{\text{EAT}}{\text{EBT}}$$

The first two ratios capture the firm's operating ability, the third and fourth ratios tell us the firm's financing decision's effect on profitability, and the last term accounts for corporate taxation.

To get a sense of the firm's dividend policy, it is customary to compute the payout ratio which is computed as the ratio of dividends per share to earnings per share.

$$\text{Payout ratio} = \frac{\text{Dividends per share}}{\text{Earnings per share}} = \frac{1.25}{3.13} = 0.40$$

Hypo's management paid out 40% of net income net of preferred dividend, to its shareholders as common dividends, retaining the balance 60% for reinvestment within the firm, which is known as the retention rate.

## 6.2.4 MARKET VALUE RATIOS

**Learning Objective 6.2.7** – *Understand* the main market value ratios, their purposes, limitations and the effect of changes in the constituent values

**Learning Objective 6.2.8** – *be able to calculate* the main market value ratios

All the ratios presented so far have been based on accounting information, which to a large extent is based on historical values of financial decisions made in the past. The market price of a stock, however, is a forward looking evaluation based on expected future performance. The following ratios combine market price with accounting performance.

A measure that is frequently used in financial markets is the stock's price earning (P/E) ratio which is the market price divided by current earnings.

$$\frac{\text{P}}{\text{E}} \text{ ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}} = \frac{26.50}{3.13} = 8.47$$

Hypo's P/E ratio indicates that the market was willing to pay SR8.47 per Riyal of earnings. It is not readily apparent how this ratio is to be interpreted. On the one hand a high P/E ratio could mean that investors are optimistic about future earnings and growth of the firm, while to some analysts a high P/E would represent an overpriced stock. Many investors use a blanket rule not to purchase stocks that have a price earnings ratio that exceeds a predetermined upper limit. However, such a filter rule may have no economic merit, as some stocks with high P/E ratios may be good bargains while some low P/E stocks may be poor investments.

The P/E ratio is used also to divide stocks into 'growth' stocks and 'value' stocks. Growth stocks refer to stocks of a company that is experiencing rapid growth of sales and earnings. As a result, the stock has a high P/E. On the other hand, value stocks are those that appear to be undervalued for reasons other than earnings growth potential. Value stocks are usually identified by their low

P/E ratios.

The market to book ratio is another measure that compares the book value of equity against the market value of equity. Book value per share is arrived at by dividing the stockholders' equity, excluding the preferred shares, by the number of common shares. (For Hypo SR358 million (SR370 million - SR12 million) divided by 20 million shares = SR 17.9).

$$\text{Market to Book Ratio} = \frac{\text{Market per share}}{\text{Book value per share}} = \frac{26.50}{17.90} = 1.48$$

The book value per share represents the historical value of what shareholders have contributed in the past through the purchase of stocks from the firm and accumulated retained earnings. For Hypo the market value of shareholder's equity exceeded the book value or historical equity value by 48%.

The dividend yield to shareholders is the return earned by shareholders in the form of dividend and is computed as the ratio of dividend per share (in the previous year) to the market price per share. For Hypo this ratio is 4.72%.

$$\text{Dividend yeild} = \frac{\text{dividends per share}}{\text{stock market price last year}} = \frac{1.25}{26.5} = 4.72\% \text{ or } .0472$$

Usually the ratios based on the financial statements are sensitive to the different accounting methods used by companies. Because accounting practices differ greatly between companies and industries, the comparison of financial ratios may be of low value. The accounting for inventory valuation, deprecation, leases, other expenses, pension obligation, and rescues are political source for non-comparability of financial statements.

Even for the single company, the comparison of its financial result over years may be misleading due to inflation and change in purchasing power in addition, there is always a possibility of falsifying the financial statement, which may lead to wrong and misleading conclusions. Thus, the quality of financial statements is a matter of great importance

## Review Problems: Financial Statement Analysis

- 1- **If a company has a 'net profit margin ratio' which is relatively low compared to the industry average, what does this tend to suggest?**
  - (a) It is minimising its production costs and expenses
  - (b) It is not controlling its production costs and expenses efficiently
  - (c) The level of its profits is likely to fall in the near future
  - (d) The level of its profits is likely to rise in the near future
  
- 2- **The latest financial statements for Algaith Corporation shows earnings per share of SR 6.20, dividends per share of SR2.40 and a market price of SR 50 per share. What is its current 'pay-out ratio'?**
  - (a) 0.05
  - (b) 0.12
  - (c) 0.17
  - (d) 0.39
  
- 3- **A company's earnings per share, dividend per share and price per share in the prior year are SR 6.26, SR 2.50 and SR 53 respectively. What is its dividend yield?**
  - (a) 4.72%
  - (b) 6.98%
  - (c) 11.81%
  - (d) 16.53%
  
- 4- **What does the 'current ratio' of a company primarily indicate?**
  - (a) The relationship between its long-term debt and its total assets.
  - (b) The net profit margin achieved on each unit of sale.
  - (c) The return achieved on its current assets.
  - (d) The extent to which its current assets cover its short-term liabilities.
  
- 5- **The current ratio of a company is 1.5, which of the following actions will increase this company's current ratio?**
  - (a) Use cash to reduce short-term notes payable.
  - (b) Use cash to reduce accounts payable.
  - (c) Issue long-term bonds to repay short-term notes payable.
  - (d) All of the answers above are correct.

**6- The Red Sea Food Company has the following relationships:**

- i. Total assets / Equity 1.5
- ii. Return on assets (ROA) 4%

**What is the company's return on equity?**

- (a) 4%
- (b) 1.5 Times
- (c) 2.67%
- (d) 6%

**7- The Red Sea Food Company has the following relationships:**

|                    |     |
|--------------------|-----|
| Sales/Total assets | 2.0 |
| Profit margin      | 4%  |
| Assets / Equity    | 1.5 |

**What is the company's return on equity?**

- (a) 8%
- (b) 6%
- (c) 3%
- (d) 12%

**8- Which of the following actions will increase a company's quick ratio?**

- (a) Reduce inventories and use the proceeds to reduce long-term debt.
- (b) Reduce inventories and use the proceeds to reduce current liabilities.
- (c) Issue short-term debt and use the proceeds to purchase inventory.
- (d) Issue equity and use the proceeds to purchase inventory.

**9- The Red Sea Transport Company records show the following data (in million Riyals):**

|                       |           |
|-----------------------|-----------|
| Net income:           | SR240     |
| Stockholders' equity: | SR10, 000 |
| Total assets:         | SR16, 000 |

**If Red Sea Transport could streamline operations, cut operating costs, and raise net income to SR300 million without affecting sales or the balance sheet (the additional profits will be paid out as dividends), what is its ROE?**

- (a) 1.50%
- (b) 3.00%
- (c) 2.40%
- (d) 1.875 %



# 7 Corporate Actions

## Introduction

### 7.1 Mandatory corporate actions

- 7.1.1 Mandatory events
- 7.1.2 Types of dividends
- 7.1.3 Stock dividends
- 7.1.4 Stock split
- 7.1.5 Dividend policy in practice

### 7.2 Voluntary corporate actions

- 7.2.1 Voluntary events

### 7.3 Dividends terminology

### 7.4 Calculations

### 7.5 Sundry matters

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.



# INTRODUCTION

A corporate action occurs when a company does something that affects its shareholders or bondholder. For example each year company might pay dividends to its shareholders; corporate actions can be classified on the basis of whether they are mandatory events (giving the investor no choice) or voluntary event (offering the investors some choice).

## 7.1 MANDATORY CORPORATE ACTIONS

A mandatory corporate action is one that is mandated by the company, not requiring any intervention from the shareholders or bondholders themselves.

### 7.1.1 MANDATORY EVENTS

**Learning Objective 7.1.1** – *Know* the characteristics of the following mandatory events:

- Dividends (cash and stock)
- Interest and coupon payments
- Bonus issues
- Splits and consolidations
- Capital repayments

The most obvious example of a mandatory corporate action is the payment of a dividend, since all shareholders automatically receive the dividend. However, there may be an element of choice, if the company gives the shareholders the option of selecting a stock dividend alternative to the cash dividend. A stock dividend is where the individual shareholders are given additional shares instead of cash.

Other mandatory corporate actions impacting shareholders include bonus issues, splits, and consolidations. Bonus issues occur when the company gives new shares to existing shareholders in proportion to their shareholding. Splits are when the existing shares are split into smaller denominations, perhaps where each individual S.R. 10 share becomes 5 S.R. shares. Consolidations are the opposite of splits, perhaps where every two SR10 shares are consolidated to become a single S.R.20 shares.

Mandatory corporate actions impacting bondholders include the payment of the coupons, usually every six months, and the repayment of the capital at the maturity of the bond.

## 7.1.2 TYPES OF DIVIDENDS

**Learning Objective 7.1.2** – Understand the three main methods of dividend distribution, their advantages and disadvantages

- Cash dividend
- Stock dividend
- Stock repurchase

Companies have been known to pay dividends either as a cash dividend, in the form of stock repurchase, or as a stock dividend. The first two are equivalent ways of distributing cash to the shareholder, while the last does not represent an actual cash distribution.

### Cash Dividends

Cash dividends, as the name implies is when the company distributes cash from earned profits to its shareholders. Since stocks are actively traded in the market the company must know to whom the dividends has to be sent. There is usually a time lag (a few weeks) between declaration and payment of cash dividends. A declared dividend becomes a liability of the corporation, and since payment is generally required very soon, is usually classified as current liability. So on the declaration date, the retained earning account is decreased by the amount of the declared dividend and a current liability of equal magnitude called dividends payable is created.

The market value of the share falls by the amount of the dividend on the date of record. An investor holding a share on the record date is entitled to the dividend, while an investor buying the share on the following day is not. The price on the following day is therefore going to be less than the price on the day before by the amount of the dividend. The market price on the record day and earlier is called the cum dividend price while the price afterwards is called the ex-dividend price.

### Stock Repurchase

Stock repurchase is considered as an alternative to cash dividends. Repurchasing stocks achieve the same outcome of distributing cash to the shareholders. A repurchase and a cash dividend are the same thing in a world without taxes and transaction costs. However, in the real world there is a difference in tax treatment of the two alternatives. In a repurchase, a shareholder pays capital gains taxes (normally lower than ordinary tax rates) on the sale while dividends are taxed as ordinary income at a higher tax rate.

Companies give many reasons for repurchasing their stock, other than the preferential tax treatment mentioned above. These include the belief, on the part of management, that the stock is undervalued. Some companies choose the repurchase alternative in an attempt to boost their earnings per share ( $EPS = \text{Earnings}/\text{Number of shares}$ ), since repurchase reduces the number of shares outstanding (the denominator) without affecting earnings as much (the numerator).

## 7.1.3 STOCK DIVIDENDS

**Learning Objective 7.1.3** – *Understand* the characteristics of stock dividends (scrip dividends) and their effect on Shareholders' Equity

- In place of a cash dividend
- Market price
- Shareholders' equity
- Effect on earnings per share and the price/earnings ratio

Note: Understanding of the effect on shareholders' equity and the market price may be tested by using simple calculations

In a stock dividend, shareholders are given new shares instead of cash. For example a 10% stock dividend implies that for every 10 shares held the shareholder will receive one new share as a dividend. Note that a stock dividend has no substantive effect on the firm since no cash flows are involved. The total value of the firm therefore should not change. However the increase in the number of shares outstanding will reduce the market price per share. The conventional wisdom is that a share price of around SR 40 to SR 50 allows small and medium size investors to participate in trading. To illustrate the significance, simply recall the days when the price per share for Riyadh Bank was SR 27,000. This meant that to buy one round lot of 100 shares required SR 2.7 million - quite outside the reach of most investors. Thus, companies experiencing sharp increases in their market price per share may choose a stock dividend to reduce the market price to allow wider investor participation.

To illustrate the effect of a stock dividend on a company's equity account, look at example 7 – 1. The company currently has 500,000 shares outstanding and has announced a stock dividend of 10%, which means that they will distribute 50,000 new shares to existing shareholders. Example 7 – 2 shows the owners' equity section after the stock dividends. The restatement is done on the basis of the current stock price, which is assumed to be SR 10 per share.

It is clear that the number of common shares has increased, but the total amount of owners' equity does not change, though it is reallocated amongst the sub accounts. The par value has increased by SR 500,000. This increase is taken out of retained earnings leaving the total book value of equity unchanged at SR 9,500,000.

### Example 7.1

#### Owners' Equity of the Company Before Stock Dividends

|   |                  |
|---|------------------|
| Capital common stock at par<br>(500,000 at S.R. 10) | 5,000,000        |
| Additional – paid – in Capital                      | 2,000,000        |
| Retained Earnings                                   | <u>2,500,000</u> |
| <b>Owners' Equity</b>                               | <b>9,500,000</b> |

**Example 7.2****Owners' Equity of the Company After Stock Dividends**

|   |                  |
|---|------------------|
| Capital common stock at par<br>(550,000 at S.R. 10) | 5,500,000        |
| Additional – paid – in Capital                      | 2,000,000        |
| Retained Earnings                                   | <u>2,000,000</u> |
| <b>Owners' Equity</b>                               | <b>9,500,000</b> |

Note that neither the total book value of equity nor the proportionate ownership of each shareholder changes. Earnings per share and market value of the stock will both decline. Earnings per share will decrease for the simple reason that net income is now divided by 550,000 instead of 500,000 shares. To see the decrease in the market price per share consider the following computation. Assume that the market price per share is SR 20 before the 10% stock dividend. An investor holding 200 shares has shares worth SR 4,000. The 10% stock dividend will increase his holdings to 220 shares. Since nothing substantive has changed with the stock dividend, his total worth still remains at SR 4,000, implying that the market price per share has now fallen to SR 18.18 (SR 4000/220 shares).

## 7.1.4 STOCK SPLIT

**Learning Objective 7.1.4** – *Understand* the characteristics of Stock Splits and their treatment within the Balance Sheet

- Reasons to split
- Market price
- Effect on Balance Sheet
- Reverse splits

As in the case of a stock dividend, some companies may choose to split their shares in an attempt to bring the price per share to a comfortable level allowing wider investor participation. In a 3 for 1 stock split, the company replaces each old share with three new shares. An investor holding 100 shares before the split will receive an additional 200 shares, to take his holding to 300 shares. Just as in the stock dividend case all post-split values must change exactly in proportion to the split. For example the book value per share will fall by a third, as will earnings per share and the market price per share.

To see the effect of this policy on the owner's equity account, Examples 7 – 3 and 7 – 4 show a 3 for 1 split, with 3 new shares replacing each old share.

**Example 7.3**

**Components of Owners Equity (in Riyals) Before the Split Decision**

|   |                   |
|---|-------------------|
| Capital common stock, at par value<br>(500,000 shares at 12 riyals) | 6.000.000         |
| Additional – paid – in Capital                                      | 2.000.000         |
| Retained Earnings   | <u>2.000.000</u>  |
| <b>Owners' Equity</b>   | <b>10.000.000</b> |

**Example 7.4**

**Components of Owners Equity (in Riyals) After the Split Decision**

|  |                   |
|--|-------------------|
| Capital common stock, at par value<br>(1.500,000 shares at 4 riyals) | 6.000.000         |
| Additional – paid – in Capital                                       | 2.000.000         |
| Retained Earnings  | <u>2.000.000</u>  |
| <b>Owners' Equity</b>  | <b>10.000.000</b> |

Comparing Examples 7 – 3 and 7 – 4, shows that the owners' equity value does not change. What does change, however, are the number of shares, which triples, and the par value, which falls to one-third its pre-split value. A reverse split does the opposite by reducing the number of shares outstanding. A 2 for 1 reverse split would replace two old shares with one new share, reducing the number of shares by half.

**7.1.5 DIVIDEND POLICY IN PRACTICE**

**Learning Objective 7.1.5** – Know the various types of dividend policy and the rationale behind dividend distribution

Companies prefer to maintain a relatively stable level of dividends, one that preferably grows over time. Frequent changes in dividends can give conflicting signals to shareholders on the performance of the firm. For example, when a company's earnings increase, management may not automatically raise the dividend. Only when management is confident that the increased earnings will be sustained in the future will they increase the dividend. Various types of dividend policies that have been observed include:

- i. Stable dollar or riyal dividend per share policy: Many companies use a stable dividend-per-share policy. A stable policy tends to be looked upon favorably by investors, as it implies a low-risk company.
- ii. Constant dividend-payout-ratio policy: With this policy a constant percentage of earnings is paid out in dividends. Because net income varies, dividends paid will also vary using this approach.

- iii. A compromise policy: A compromise between the policies of a stable riyal amount and a percentage amount of dividends is for a company to pay a low riyal amount per share plus a percentage increment in good years.
- iv. Residual-dividend policy: With this kind of policy the amount of earnings retained depends upon the availability of investment opportunities in a particular year. Dividends paid represent the residual amount from earnings after the company's investment needs are fulfilled.

## 7.2 VOLUNTARY CORPORATE ACTIONS

Voluntary events are corporate actions that require the shareholders to become active - they are given an element of choice. Five examples for voluntary corporate actions will be considered in the following sections:

### 7.2.1 VOLUNTARY EVENTS

**Learning Objective 7.2.1** – *Know* the characteristics of the following voluntary events:

- Rights issues
- Conversions
- Takeovers
- Exchanges
- Initial public offerings

#### (1) Rights issues

A company may wish to raise additional finance by issuing shares. This might be to provide funds for expansion, or to repay bank loans or bond finance. In such circumstances, it is common for a company to approach its existing shareholders with a 'cash call' - they have already bought shares in the company, so would they like to buy some more?

As an example of a rights issue, the company might offer shareholders the right that, for every four shares owned, they can buy one more share at a specified price.

The initial response to the announcement of a planned rights issue will reflect the market's view of the scheme. If it is to finance expansion, and the strategy makes sense to the investors, the share price could well rise. If the money is to be used to pay large bonuses to mediocre directors, the response might be the opposite.

The company and their investment banking advisers will have to consider the numbers carefully. If the price at which the new shares are offered is too high, the cash call might flop. This would be embarrassing and potentially costly for the investment bank that will have arranged the underwriting of the issue. The underwriters agree to buy the shares if no one else will, and the investment bank will probably underwrite some of the issue itself.

### **Example 7.5**

ABC currently has 100 million shares in issue, currently trading at SR 40 each. To raise finance for expansion, ABC decides to offer its existing shareholders the right to buy one new share for every five previously held. This is described as a 1 for 5 rights issue. The price of the new shares is set at a discount to the prevailing market price, at only S.R 35.

Each shareholder is given choices as to how to proceed following a rights issue. For an individual investor holding 5 ABC shares, he could:

- Take up the rights, by paying the S.R 35 and increasing his holding in ABC to 6 shares
- Sell the rights to another investor. The rights entitlement is transferable and will have a value because it enables the purchase of a share at the discounted price of S.R 35
- Do nothing. If the investor chooses this option, the company's advisers will sell the rights at the best available price and pass the proceeds (after charges) to the shareholder

## **(2) Conversions**

Holders of a company's convertible bonds, or convertible preferred stock, have the ability to convert their investments into common stock. The option to convert might be restricted to particular periods, and in these periods it is up to the investor to notify the company of their wish to exercise their right to convert.

## **(3) Takeovers**

Imagine that one company (ABC - the predator) makes an offer to takeover another company (XYZ - the target). The shareholders in XYZ will each be able to sell their shares at the offer price, throughout the period of the offer. The XYZ shareholders are not obliged to take up the offer - they have the choice of accepting or rejecting the offer.

## **(4) Exchanges**

Some takeovers are structured as share for share exchanges, rather than cash purchases. ABC might offer the shareholders of XYZ new ABC shares in exchange for their xyz shares. As in the case of the cash takeover, the XYZ shareholders are not obliged to take up the offer - they have the choice of accepting or rejecting the exchange.

## **(5) Initial Public Offerings**

When an existing company decides to raise further finance by becoming a listed entity, it will invite both existing shareholders and new investors to subscribe for new shares. In these initial public offers, neither the existing shareholders nor the new investors are required to take up the offer- it is a voluntary corporate action.

## 7.3 DIVIDENDS TERMINOLOGY

**Learning Objective 7.3** – *Understand* the following terms:

- Record date
- Ex-date
- Cum benefit
- Ex benefit
- Special ex
- Special cum

Note: Assumption: T+ 0 settlement period

We have seen that dividends are an example of a mandatory corporate action, and represent the part of a company's profit that is passed to shareholders. The amount paid per share may vary, as it depends on the overall profitability of the company and the availability of cash. The individual shareholder will receive the dividends either by check, or by the money being transferred straight into their bank accounts.

A practical difficulty, especially in a large company where shares change hand frequently, is determining who the correct person to receive the dividend is. Markets have developed procedures to minimize the extent that people get dividends when they are not entitled, or fail to receive a dividend to which they are entitled. The shares will be bought and sold with the right to receive the next declared dividend until a particular date known as the 'ex dividend' date. Up to that point the shares are described as 'cum-dividend'. If the shares are purchased cum dividend; the purchaser gets the declared dividend. For the period from the ex-dividend date up to the dividend payment date, the shares are bought and sold without the right to the impending dividend.

### **Example 7.6**

The sequence of events might be as follows:

Example Corporation decides to pay a dividend, the dividend is announced on 17th August and Example will pay the dividend to shareholders on the register of shareholders on 8th October. This date is known as the record date.

Given the record date of 8th October, the local exchange usually sets the ex-dividend date a few days earlier. When the shares go ex-dividend, the price should fall by the amount of the impending dividend.

This process should ensure that the investors, who buy just before the dividend is paid, pay the lower price because they will not get the dividend. Similarly, those that sell just before the dividend is paid receive the lower price, because they will still receive the dividend.

Sometimes, buyers of shares may wish to avoid receiving a dividend although the shares are

currently trading cum-dividend. In such circumstance they may find counterparty willing to sell the shares without the dividend - this is known as a 'special ex' transaction. A similar possibility may exist where a seller wants to sell when the shares are trading ex-dividend, but wants to sell both the share and the impending dividend - this is known as a 'special cum' transaction.

Like dividends, shares subject to other corporate actions move from being with entitlement (cum) to without entitlement (ex), so that it is clear to existing investors and potential investors whether they are selling and buying with, or without the benefit of the impending corporate action.

## 7.4 CALCULATIONS

**Learning Objective 7.4** – *Be able to calculate corporate actions related data on:*

- Capitalization
- Bonus scrip issues
- Rights issues

A bonus issue (also known as a scrip or capitalization issue) is the corporate action whereby the company gives the existing shareholders new shares for nothing. The company is simply increasing the number of shares held by each shareholder and capitalizes earnings by making a transfer to shareholders' equity.

### Example 7.7

Rabbit Corporation shares currently trade at S.R 12 each. Rabbit decides to have a 1 for 1 bonus issue, giving each shareholder an additional share for each share they currently hold.

The result is that a single shareholder that held one share worth S.R 12 now has two shares worth the same amount in total, i.e., the share price will fall to S.R 6 each.

The reason for having a bonus issue is to increase liquidity of the company's shares in the market and to bring about a lower share price. It is felt that if a company's share price gets too high it will become unattractive to investors. For example, traditionally large companies in the UK have tried to keep their share prices below SR10. Several years ago HSBC shares were trading at £ 21, and were subject to a 2:1 scrip issue (2 new shares for every 1 previously held), and the share price fell to £7.

The simplest way to calculate the 'ex-bonus' price is to adopt a tabular approach. Using the Company A example above:

|        | Number of shares | Price                             |
|--------|------------------|-----------------------------------|
| Before | 1                | SR21                              |
| Bonus  | 2                | free                              |
| After  | 3                | $\text{£ } 21/3 = \text{£ } 7.00$ |

For rights issues the calculation approach is similar. For illustration we will use the example encountered earlier:

### Example 7.8

ABC currently has 100 million shares in issue, currently trading at SR 40.00 each. To raise finance for expansion, ABC decides to offer its existing shareholders the right to buy one new share for every five previously held. This is described as a 1 for 5 rights issue. The price of the new shares is set at a discount to the prevailing market price, at only S.R 35.00.

|  | Number of shares | Price  |
|--|------------------|--|
| Before – use the minimum number to qualify | 5                | $5 \times \text{S.R}40 = \text{S.R}200$                  |
| Right                                      | 1                | $1 \times \text{S.R}35 = \text{S.R} 35.00$               |
| After                                      | 6                | $(\text{S.R}200 + \text{S.R}35.00) / 6 = \text{S.R}39.2$ |

Because shareholders are given the choice of selling the rights to another investor, we can also calculate the price at which the rights can be sold. This is referred to as the 'nil paid price' and is simply the difference between the 'ex rights' price and the cash that needs to be paid to exercise the right. In the above example it is  $39.2 - 35.0 = 4.2$  SR.

## 7.5 SUNDRY MATTERS

**Learning Objective 7.5** – Understand basic details of the following as they relate to the various corporate actions:

- Advantages to the issuer
- Use of an underwriter
- Stabilization

As noted above, corporate actions are undertaken for a variety of reasons. Some are simply servicing the investors in the company - such as paying dividends to shareholders and interest to lenders. Others are undertaken to reorganize the share capital and potentially make it more attractive to investors generally- such as bonus issues, splits and consolidations. Takeovers have the potential to transform the organization, whilst rights issues and initial public offers are capital raising corporate actions.

Rights issues and initial public offers tend to be underwritten by investment banks. This simply means that if investors are unwilling to buy the shares, the investment bank will have to buy them. Therefore the company is effectively guaranteed the finance, although they incur a cost in underwriting fees. If the issuing company is large, a single investment bank might be unwilling to risk underwriting the whole issue itself, and instead will arrange an underwriting syndicate, consisting of a variety of financial institutions. Occasionally the investment bank will combine the underwriting of an issue with a commitment to prevent the price of the issued securities falling below a particular pre-agreed level for a period. This process is known as stabilization, and there are generally demanding disclosure and time limits attached to such agreements by the financial regulators.

## Review Questions: Corporate Actions

- 1 - **If the issuer of a share announces a cash dividend and investor A sells some of these shares to investor B on the day before the record date, which of them will be entitled to this dividend payment?**
  - (a) Investor A in entirety
  - (b) Investor B in entirety
  - (c) Both - split on a 50 : 50 basis
  - (d) Both - split pro rata based on days held
  
- 2 - **A company following a residual dividend payout policy will pay higher dividends when, everything else equal, it has:**
  - (a) less attractive investment opportunities
  - (b) Lower earnings available for investment
  - (c) A lower target debt- to- equity ratio
  - (d) A lower opportunity cost of retained earnings
  
- 3 - **The date when the stockholder right to receive a dividend expires is called the:**
  - (a) Declaration date
  - (b) Record date
  - (c) Ex-dividend date
  - (d) Announcement date
  
- 4 - **Anwar company stock price stood at SR 120 at the beginning of 2011. On 01/04/2011 the company declared a 3 for 2 stock splits. What is the approximate new market price for Anwar Stock?**
  - (a) SR 120
  - (b) SR 80
  - (c) SR 60
  - (d) SR 40
  
- 5 - **When a company desires to decrease the market value per share of its common stock, the company will:**
  - (a) Split the stock
  - (b) Buy treasury stock
  - (c) Sell treasury stock
  - (d) Retain its current earnings

**6 - Hilal company share is currently trading at SR 120 each. If the company decides to have a 1 for 1 bonus issue, what will happen to its share price?**

- (a) Increase to SR 240
- (b) Increase but difficult to determine the new high price
- (c) Fall to SR 60 per share
- (d) Will fall but difficult to determine the new low price

**7 - Companies split their shares in order to :**

- (a) Make it more liquid and available to larger segment of the market
- (b) Reduce its earnings per share figure
- (c) Make existing shareholders more wealthy by having more shares
- (d) Reduce the amount of taxes it pays on its current earnings

**8 - Which of the following corporate actions is not mandatory?**

- (a) Rights subscription
- (b) Cash dividends
- (c) Stock dividends
- (d) Shares repurchase

**9 - After a stock split:**

- (a) The owners' equity section of the balance sheet will increase
- (b) The Owners equity section of the balance sheet will decrease
- (c) The owners' equity section of balance sheet will remain the same and not be affected
- (d) Will initially decrease at the time of the split and then increase afterwards

**10 - After the day of record of a dividend paying stock:**

- (a) Buyers of the stock pay higher price because they receive the dividends.
- (b) Buyers of the stock pay lower price because they do not receive the dividends.
- (c) Sellers of the stock receive higher price because they receive the dividends.
- (d) The stock price will not be affected.

# 8 Quantitative Foundation of Investment Analysis

## Introduction

### 8.1 Time value of money

8.1.1 Compounding (future value)

8.1.2 Discounting (present value)

8.1.3 Annuities

### 8.2 Rates of return

8.2.1 Multi – periods rate of return

8.2.2 Expected return

### 8.3 Investment risk

## Review questions

## Appendix

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.



# INTRODUCTION

This chapter describes some fundamental mathematical tools which represent foundations for investment analysis and its various applications. The concept of the time value of money which is an integral part of many investment and valuation applications such as securities, investment project, mortgages, operating and financing leases, and mergers and acquisition. The second part of the chapter describes investment elements related to the calculation of return and risk of various investments and its importance in ranking investments.

## 8.1 TIME VALUE OF MONEY

**Learning Objective 8.1** – *Understand* what is meant by the time value of money

The time value of money is the most widely applied and used concept in finance. Time value of money is used in all discounted cash flow analysis and is the basis of such diverse applications as valuing securities, project valuation, firm valuation, and the computing of mortgage payment schedules.

A dollar invested today will grow to more than a dollar in the future, because it can be deposited to earn interest. This implies that a dollar today is not the same as a dollar in the future. This constraint prevents the simple addition of monetary amounts across time. Since many investments have payoffs that are spread out over many time periods, valuation of such investments requires adjusting for the time value of money. The principles of discounting and compounding allow us to adjust for the time dimension.

### 8.1.1 COMPOUNDING (FUTURE VALUE)

**Learning Objective 8.1.1** – *Understand* how to calculate the future value of funds

When a sum of money is deposited, it attracts interest. This interest is compounded, because not only does principal earn interest during a period, but so does the interest that was earned in prior periods. In most applications we will take for granted that interest is compounded. In the jargon of 'time value of money', present value represents the amount borrowed or invested today, while future value refers to the amount that will be repaid or received later. Future values and present values are related mathematically as:

$$FV_n = PV_0 (1 + i)^n$$

Where:  $FV_n$  = the future value of the investment at the end of  $n$  periods.

$i$  = the interest rate (sometimes also called the discount rate) per period.

$PV_0$  = the present value, or original amount invested at the beginning of the first year.

$n$  = the number of periods

**Example 8.1**

If S.R. 1,000 were deposited in a saving account that pays 8% interest compounded annually, what would be the balance in this account at the end of 5 years?

Using the above equation:

$$\begin{aligned}FV_5 &= PV_0 (1 + i)^5 \\ &= 1,000 (1 + .08)^5 \\ &= 1,000 (1.4693) \\ &= \text{S.R. } 1469.30\end{aligned}$$

Compounding may occur more frequently than once a year. For example a credit card company may state that it charges an interest rate of 15% per year but that it charges interest every month. Such an arrangement would be termed as, '15% per year compounded monthly'. More frequent compounding increases the effective interest rate. To account for more frequent compounding the following modification to the equation is required, where 'm' stands for the number of times interest is compounded per year.

$$FV_n = PV_0 \left(1 + \frac{i}{m}\right)^{n \times m}$$

**Example 8.2**

The S.R. 1,000 mentioned before is placed in a saving account that pays 8% as before, with one exception that the interest is compounded quarterly, instead of being compounded annually. The balance in the saving account at the end of the 5th year is calculated as follows:

$$\begin{aligned}FV_5 &= PV_0 \left(1 + \frac{i}{4}\right)^{5 \times 4} \\ &= 1,000 (1.02)^{20} \\ &= 1,000 (1.4859) \\ &= 1485.9\end{aligned}$$

Note how the more frequent compounding has resulted in a larger future value.

## 8.1.2 DISCOUNTING (PRESENT VALUE)

**Learning Objective 8.1.2** – *Understand* how to calculate the present value of funds to be received in the future

Present value represents the current value of a sum of money to be received in the future.

$$PV_0 = \frac{FV_n}{(1+i)^n}$$

Where all the quantities are as defined earlier.

### Example 8.3

What is the present value of S.R. 10,000 to be received 5 years from today if the discount rate is 8% per year?

$$PV_0 = \frac{10,000}{(1.08)^5} = 6,806$$

= S.R. 6,806

Thus, the present value of S.R. 10,000 payment to be received 5 years later is S.R. 6,806, if the interest rate is 8% per year.

## 8.1.3 ANNUITIES

**Learning Objective 8.1.3** – *Understand* how to calculate the future and present values of annuities

So far we have considered only cases where we have a single amount today whose future value was determined, or a single future value whose present value was computed. An annuity is a series of payments (normally of equal magnitude) at equally spaced intervals. There are two basic types of annuities: an ordinary annuity and an annuity due. In ordinary annuities the payments take place at the end of each period; while in an annuity due, the payments occur at the beginning of each period.

Annuities due have greater present and future values than ordinary annuities, since in an annuity due the payments occur earlier.

## FUTURE VALUES OF ANNUITIES

The future value of an ordinary annuity (FVA) with a given payment stream (PMT) is given by:

$$FVA_n = \frac{PMT}{i} [(1 + i)^n - 1]$$

### Example 8.4

An investor deposits SR 1,000 each at the end of every year for 5 years into a bank that pays 10% per year. The first deposit is made at the end of the first year. This is an example of an ordinary 5 year annuity with PMT equal to SR 1,000. The balance in the bank at the end of five years (the future value) will be S.R. 6,105.

$$FVA_n = \frac{1.000}{0.10} [(1 + 0.10)^5 - 1]$$

## PRESENT VALUE OF AN ANNUITY

The present value (PVAO) of an ordinary annuity can be calculated using the following formula.

$$PVA_o = \frac{PMT}{i} \left[ \frac{(1+i)^n - 1}{(1+i)^n} \right]$$

Where all quantities on the right hand side are as defined earlier.

### Example 8.5

An investment promises to pay S.R. 100 every year for the next five years, with the first payment one year from now. The present worth of this investment is the present value of the annuity. If the prevailing interest rate is 10% per year the present value is S.R.379.10.

$$PVA_o = \frac{100}{0.10} \left[ \frac{(1+0.10)^5 - 1}{(1+0.10)^5} \right] = S. R. 379.10$$

## PRESENT VALUES, TWO SPECIAL CASES

Two special kinds of cash flow that will be incurred in practice are, level perpetuities and growing perpetuities. The following formulae can be used to determine their present values. Perpetuity is defined as an annuity that goes on forever. A growing perpetuity as the name implies is perpetuity where the payments are growing over time at some growth rate.

The present value  $PVP_0$  of a perpetuity which pays PMT each year forever, with the first payment one year from now, is:

$$PVP_0 = \frac{PMT}{i}$$

The present value  $PVGP_0$  of a perpetuity which pays  $PMT$  one year from now and then grows at the rate of  $g\%$  each year forever is given by:

$$PVP_0 = \frac{PMT}{i-g}$$

**Example 8.6**

What is the present value of an investment that promises to pay S.R.100 every year forever, with the first payment one year from now? The interest rate is 8% per year.

$$PVP_0 = \frac{100}{0.08} = SR\ 1,250$$

**Example 8.7**

What is the present value of an investment that promises to pay S.R.100 one year from now, and then to continue paying an amount each year that increases at the rate of 5% per year forever, if the prevailing interest rate is 10%. This implies that the investment pays:

SR 100 one year later, SR 105 two years later, SR 110.25 three years later and so on ...

$$PVGP_0 = \frac{100}{.10-0.05} = SR\ 2,000$$

## 8.2 RATES OF RETURN

**Learning Objective 8.2** – Understand the calculation of the Rate of Return on an investment, its purpose, limitations and the effect of changes in the constituent values

Note: This objective may be examined by using numerical calculations

The rate of return on an investment represents the amount of money earned over the investment period, including price appreciation (capital gains) and income (dividend, rents, interest, etc.) expressed as a fraction of the amount invested. Formally:

$$R = \frac{\text{Ending Price} + \text{Cash Income} - \text{Beginning Price}}{\text{Beginning Price}}$$

In the specific case of a stock this would be written as:

$$R = \frac{\text{Selling Price} + \text{Cash Dividend} - \text{Purchase Price}}{\text{Purchase Price}}$$

This can interestingly be expressed as:

$$R = \frac{\text{Selling Price} - \text{Purchase Price}}{\text{Purchase Price}} + \frac{\text{Cash Dividend}}{\text{Purchase Price}}$$

### Example 8.8

Assume that a stock purchased for SR 185 paid a dividend of SR 10 during the year and was sold at year end for SR 200. The rate of return over the one year holding period would be:

$$R = \frac{200 - 185 + 10}{185} = \frac{200 - 185}{185} + \frac{10}{185} = 0.081 + 0.054 = 0.135 \text{ or } 13.5\%$$

The total rate of return is 13.5% accounted for by 8.1% coming from capital gain and 5.4% from dividend yield.

## 8.2.1 MULTI-PERIODS RATE OF RETURN

**Learning Objective 8.2.1** – Understand the calculation of multi-period Rates of Return on an investment, its purpose, limitations and the effect of changes in the constituent

Investments are not all limited to one period but may extend to multiple periods. Investors will, therefore, need to measure the average return over their investment horizon. There are several measures of average performance that can be used and they include the arithmetic average and the geometric average, as well as the dollar-weighted return that will be considered in the next section.

### Arithmetic Average Return

The arithmetic average of the multi-period returns is computed by simply averaging the individual single period returns by summing the single period returns and dividing by the number of the periods. For example, if the annual returns on a certain stock over the last three years were 15%, 10%, and 20%, respectively, the arithmetic average is:

$$\text{Arithmetic Average } R = \frac{\sum_{i=1}^T R_i}{T} \text{ The symbol } \sum \text{ asks us to sum the } R\text{'s from years } I \text{ thru } T \frac{15+10+20}{3} = 15\%$$

The major limitations of this average measure are that it ignores the effect of compounding, and is not a representative measure of the realized average return. It is better used as an unbiased estimate of the stock return for the next period.

### Geometric Average Return (Calculations not required)

Unlike the arithmetic average, the geometric average takes explicit account of compounding. The geometric average is calculated by compounding period-by- period returns and then finding their average:

$$\text{Geometric Average } R = \sqrt[T]{\prod_{i=1}^T (1 + R_i)} - 1 . \text{ The symbol } \prod \text{ asks us to multiply the } (1 + R)\text{'s for year } 1 \text{ to } T.$$

### Example 8.9

Using the data from the previous example, the geometric average works out to 14.9%.

$$R = \sqrt[T]{(1 + R_1)(1 + R_2)(1 + R_n)} - 1$$

$$\text{Geometric Average } R = \sqrt[3]{(1 + 0.15)(1 + 0.10)(1 + 0.20)} - 1 = 0.149 \text{ or } 14.9\%$$

Another method that compounds the interim returns is the dollar-weighted return method (the appendix to this chapter illustrates this method)

## 8.2.2 EXPECTED RETURN

**Learning Objective 8.2.2** – *Understand* the calculation of the expected return on an investment and the effect of changes in the constituent values

Sometimes investors are more interested in identifying the future likely performance of their investments rather than their historical results. Of course future performance can be measured only in expected, or most likely terms and not with certainty (except in some cases where the future performance of the investment is known with certainty, such as perhaps an investment in government securities). The best that can be done in such situations is to draw up a probability distribution of return, and compute an expected value. A probability distribution is an enumeration of various possible scenarios along with the subjective probabilities for each possible outcome. The expected return is computed as a weighted average of the individual possible outcomes, where the weights are the probabilities. Formally:

$$E\{R\} = \sum_{i=1}^{i=M} P_i \times R_i$$

Where:  $E(R)$  = the expected or mean return of the investment

$R_i$  = the return of the investment under scenario  $i$

$P_i$  = the probability that scenario  $i$  occurs

$M$  = the number of possible scenarios

A numerical example will help illustrate the idea

### Example 8.10

Consider an investment of S.R.100 to be made today. The analyst has drawn up the following probability distribution for the possible performance of the investment a year from now. He believes that there are three possible scenarios that will emerge. The probability of the first outcome for example is 20% or 0.20. There is a 20% probability that the investment will pay off SR 130 at the end of the year. The analyst believes that there is a 60% probability that the investment will pay off SR 110 by year end, and a 20% probability of a payoff of SR 90 at the yearend Note that the probabilities must add up to 1 or 100%.

| Outcome | Probability | Payoff(SR) |
|---------|-------------|------------|
| 1       | .20         | 130        |
| 2       | .60         | 110        |
| 3       | .20         | 90         |

The payoff table can be translated to returns on the investment. The first outcome for example implies a return of 30% on the S.R.100 investment.

| Outcome | Probability | Payoff (%) |
|---------|-------------|------------|
| 1       | .20         | 30         |
| 2       | .60         | 10         |
| 3       | .20         | - 10       |

### Example 8.10 (cont.)

The expected return is a weighted average of the individual returns, using the probabilities as weights.

$$E(R) = 30\% \times 0.2 + 10\% \times 0.6 + (-10\%) \times 0.2 = 10\%$$

This measure of return can be used by the investor as an estimate of the most likely outcome for the investment.

## 8.3 INVESTMENT RISK

**Learning Objective 8.3** – *Understand* investment risk as it relates to future returns and the effect of changes in the constituent values

Note: Calculations of standard deviation is not required in the examination

All investments involve some degree of uncertainty with respect to their future returns. In finance and economics uncertainty and risk are considered to be synonymous, any investment that has uncertain future outcomes is therefore deemed to be risky. Risk to a particular investment can stem from many different sources; they could arise from economy-wide shocks, industry factors, or factors specific to the investment itself.

## Measuring Risk

There are a number of different operational measures of investment risk. In this section we describe how total risk is measured by computing three equivalent metrics: Variance, Standard Deviation, and Coefficient of Variation of the return on investment.

**Variance** is defined as the mean squared deviation of return around the mean or expected return and is a measure of the total risk of the security.

**Standard Deviation** is defined as the square root of variance.

**Coefficient of Variation** is defined as the standard deviation of return divided by the mean return.

In computing these measures, the analyst can either use historical data or a subjective probability evaluation of the future. If one is using historical data on returns:

The variance, denoted by  $\sigma^2$ , is computed as:

$$\sigma^2 = \frac{1}{T-1} \sum_{t=1}^{t=T} (R_t - \bar{R})^2$$

Where:  $\bar{R}$  = mean return

$R_t$  = return in period

$T$  = number of time periods

The standard deviation, denoted by  $\sigma$ , is computed as:

$$\sigma = \sqrt{\sigma^2}$$

And finally the coefficient of variation, denoted by C.V., is computed as:

$$C.V. = \frac{\sigma}{\bar{R}}$$

If the analyst is using a forward looking probability distribution of future returns the variance would be computed as:

$$\sigma^2 = \sum_{i=1}^{i=m} P_i \times (R_i - \bar{R})^2$$

Where  $P$ ,  $M$ ,  $R$ , and  $\bar{R}$  are as defined earlier

### Example 8.11

Consider an investment that has provided returns of 15%, 10% and 20% each year over the last

three years.

The mean return ( $\bar{R}$ ) is 15%.

The variance, standard deviation, and C.V. of return would be calculated as:

$$\sigma^2 = \frac{1}{2} \{(15 - 15)^2 + (10 - 15)^2 + (20 - 15)^2\} = 25\%$$

$$\sigma = \sqrt{25} = 5\%$$

$$C.V. = \frac{5}{15} = 0.33$$

(Note that the units of variance are expressed as percent squared).

**Example 8.12**

Reconsider the data used in the example earlier.

| Outcome | Probability | Return(%) |
|---------|-------------|-----------|
| 1       | .20         | 30        |
| 2       | .60         | 10        |
| 3       | .20         | -10       |

The mean or expected return was calculated to be 10%.

The variance, standard deviation, and C.V are computed below.

$$\sigma^2 = 0.2 \times (30 - 10)^2 + 0.6 \times (10 - 10)^2 + 0.2 \times (-10 - 10)^2 = 160\%$$

$$\sigma = \sqrt{160} = 12.65\%$$

$$C.V = \frac{12.65}{10} = 1.265$$

## Review Questions: Mathematical Foundation of Investment analysis

- 1 - The present value of a single future sum:**
  - (a) Increases as the number of discount periods increases.
  - (b) Is generally larger than the future sum.
  - (c) Depends upon the number of discount periods.
  - (d) Increases as the discount rate increases
  
- 2 - How long will it take S.R 10000 to double, if the interest rate is 5% compounded annually?**
  - (a) Approximately 20 years
  - (b) Approximately 10 years
  - (c) Approximately 15 years
  - (d) Approximately 5 years
  
- 3 - You just purchased a piece of land North Riyadh for 10 million Saudi Riyals and you expect a 12 percent annual rate of return on your investment, how much will you sell the land for in 10 years?**
  - (a) SR 25 million
  - (b) SR 31.060 million
  - (c) SR 38.720 million
  - (d) SR 34.310 million
  
- 4 - Which of the following provides the greatest annual interest?**
  - (a) 10% compounded annually
  - (b) 9.9% compounded monthly
  - (c) 9.8% compounded weekly
  - (d) 9.6% compounded daily
  
- 5 - Total return of a security is equal to:**
  - (a) Capital gain + security price change.
  - (b) Yield + income.
  - (c) Capital gain – capital loss.
  - (d) Yield + Security price change.
  
- 6 - Total return is:**
  - (a) The difference between the sale price and the purchase price of an investment.
  - (b) Measured by dividing the sum of all cash flows received by the amount invested.
  - (c) The reciprocal of a return relative.
  - (d) Measured by dividing all cash flows received by its selling price.

**7 - In order to determine the compound growth rate of an investment over some period, an investor would calculate the:**

- (a) Arithmetic mean
- (b) Geometric mean
- (c) Statistical mode
- (d) Arithmetic median

**8 - Present value is based on the concept of:**

- (a) Compounding.
- (b) Standard deviation
- (c) Variance.
- (d) Discounting.

**9 - Use the following table to calculate the expected return for the asset.**

| Return | Probability |
|--------|-------------|
| 0.1    | 0.25        |
| 0.2    | 0.5         |
| 0.25   | 0.25        |

- (a) 15%
- (b) 17.5%
- (c) 18.75%
- (d) 20.0%

**10 - Ahmad purchased a stock for SR 100 one year ago. The stock is now worth SR150. During the year, the stock paid a dividend of SR20. What is the total return to Ahmad from owning the stock? (Round your answer to the nearest whole percent.)**

- (a) 30%
- (b) 20%
- (c) 70%
- (d) 100%

**11 - The best return measure to use if you are trying to measure the total effect of returns over time given some stated beginning amount is the:**

- (a) Total return
- (b) Return relative
- (c) Cumulative wealth index
- (d) Total yield

# APPENDIX (NOT- FOR EXAMINATION MATERIAL)

This appendix is an additional and further understanding but not examined under CME – 1 Exam

## DOLLAR-WEIGHTED RETURN

**Learning Objective** – *Understand* the Dollar-Weighted method of calculating return on an investment, its purpose, limitations and the effect of changes in the constituent values

The dollar-weighted method of calculating return is similar in principle to the geometric average, in that interim returns are compounded (ie reinvested) immediately. It is used in cases where an investment involves inflows and outflows of cash over the life of the investment. The technique of computing the rate of return requires an understanding of present values. Present value is defined as the value today of a dollar sum to be received in the future and is computed by dividing the future cash flow by a deflating factor. The deflating factor is the amount to which one dollar invested today would grow to in the future at the given rate of return. The dollar weighted return searches for that rate of return that equates the present values of all future cash flow to the initial amount of the investment. Formally, it is the R that solves the following present value equation.

$$1 = \sum_{t=1}^{t=T} \frac{CF_t}{(1 + R)^t}$$

Where: I = the amount of the initial investment

CF<sub>t</sub> = cash flows that occur at each point in time (dividends, interest, principal, est.)

R = dollar – weighted rate of return

### Example

Consider an investment of S.R. 1,000,000 that paid S.R. 100,000 one year later, S.R. 150,000 two years later, and S.R. 200,000 three years later. Additionally, the one million riyals was recovered at the end of the fourth year. The dollar-weighted return is computed as:

$$1.000.000 = \frac{100.000}{(1 + R)} + \frac{150.000}{(1 + R)^2} + \frac{200.000}{(1 + R)^3} + \frac{1.000.000}{(1 + R)^4}$$

There is no easy way to solve for the R that is embedded in this equation. One requires specialized software or a programmed financial calculator to evaluate the R. Using a financial calculator the value of R solves to 11.55%.

# 9 Asset Valuation: Equity Investments

## Introduction

### 9.1 Approaches to security valuation

- 9.1.1 Introduction
- 9.1.2 Industry life cycle
- 9.1.3 Cyclical and defensive industries
- 9.1.4 Valuing using dividends

### 9.2 Technical analysis Price multiples

- 9.2.1 The characteristics of technical analysis

### 9.3 Technical analysis

- 9.3.1 The characteristics of technical analysis

## Review questions

## Appendix

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter focuses on security valuation techniques as applied to equity investments. It uses fundamental analysis and draws on the knowledge introduced earlier in this study guide on financial statement analysis and time value of money techniques to value stocks and preferred shares. A brief introduction to technical analysis is also included.

## 9.1 APPROACHES TO SECURITY VALUATION

### 9.1.1 INTRODUCTION

**Learning Objective 9.1.1** – *Understand* the basic principles of industry and sector analysis

The valuation of securities generally follows a top down approach. To begin with, the analyst assesses the state of the macro economy in terms of inflation, unemployment rates, exchange rates, balance of payments, and other macro parameters that will have an impact on the value of the security. Moving down, the characteristics of industry to which the firm belongs will have to be examined.

To help in firm analysis it is useful to classify the business into a particular sector or industry. A sector is a classification that is broader than an industry. For example, the utilities sector encompasses various industries such as Electric, Gas, Telephone and Water. It should be intuitively obvious that the performance of a firm is likely to be tied to the fortunes of the industry to which it belongs. Firms in declining industries will find it more difficult to generate profits than a firm that is in a growing industry.

The goal of industry analysis is to determine the relative attractiveness of the different industries. Specifically, an analyst wants to determine the risk-return trade-offs and the important factors that affect future performance. Once these factors have been identified, the analyst will seek to forecast future trends in each industry. Industry analysis is an important element in successful investing. Although the overall market may be going up, a particular industry may be in decline.

In studying an industry it may be useful to distinguish demand related factors from supply side factors. On the demand side, analysts try to identify who the end-users of products are and how they may change their behavior in the future. On the supply side, analysts try to identify the degree of concentration ratio. This measures how much of the industry is dominated by the largest firms. Then the analyst will seek to answer questions like how do these firms compete? Is the competition based on price, quality or warranties? From this the analyst should be able to assess whether particular industries are attractive or unattractive for investment.

## 9.1.2 INDUSTRY LIFE CYCLE

**Learning Objective 9.1.2** – *Know* the stages in an industry life cycle:

- Start-up
- Growth
- Consolidation
- Decline

Looking across the economy, it is easy to see that some industries are growing at very rapid rates while others appear to be standing still in terms of new investments and innovations. Furthermore some industries that were in rapid growth in the past, appear to slow down and then to go into decline. These observations have led economists to define an industry life cycle hypothesis, which states that industries go through a discernible pattern. A typical cycle involves four stages: startup followed by a period of rapid growth, reaching a period of consolidation and maturity and then the final stage of decline. It is important for analysts to understand the stage or phase of an industry, since the future prospects and risks of the firm depend on the remaining life of the industry. Biotechnology for example appears to be in its rapidly developing stage while natural gas could be thought to be a mature industry. External forces such as political and regulatory changes and social and demographic changes can greatly influence a particular industry's progression through its life cycle.

## 9.1.3 CYCLICAL AND DEFENSIVE INDUSTRIES

**Learning Objective 9.1.3** – *Know* the differences between Cyclical and Defensive Industries

The economy goes through recurrent periods of expansion and contraction. Economists have spent considerable effort in understanding these cycles. In this section, we look at how different stocks behave at different stages of the business cycle. Analysts may want to classify a firm as either being defensive or cyclical. Defensive stocks and cyclical stocks can be expected to respond differently as the economy goes from an expansion to a contraction and vice versa.

Cyclical industries are industries that are particularly sensitive to the business cycle. Such industries tend to outperform other industries when the economy is coming out of a recession, but do worse than other industries when the economy goes into a recession. Durable goods, luxury items and automobiles tend to fall into this category. Stocks of companies in cyclical industries will show attractive gains just before and during an upturn in the economy.

Defensive industries on the other hand find that their sales and profits are relatively immune to the business cycle. For example, a grocery store will continue to sell a similar amount of basic groceries regardless of whether the economy is expanding or contracting. Firms in such industries will tend to have a superior performance relative to other firms when the economy enters a recession.

From an investment timing perspective it makes sense to invest in cyclical stocks just before an upturn and switch to defensive stocks just before a downturn. However this is easier said than done, before it is clear where the economy is in the business cycle the economy may have moved into or out of a recession.

## 9.1.4 VALUING USING DIVIDENDS

**Learning Objective 9.1.4** – *Know* how the main types of investments are valued:

- Preferred stock
- Common stock (ordinary shares)
  - Constant level dividends
  - Constant growth dividends

Note: This objective may be tested by using numerical calculations

Investment returns from equity generally come in two forms

- Capital gains as the price appreciates and the equity is sold for more than the investor paid for it; and
- Dividend income paid by the issuing company to its shareholders.

What anyone will pay for an investment is determined by the return that investment provides. One investor might plan to hold an equity investment for 3 years and then sell it. The value of that investment will be determined by the dividends receivable in those three years plus the anticipated resale value at the end of the three years. At the end of the three years the amount that the next investor will be willing to pay will be driven by the dividends he hopes to receive plus his anticipation of the resale value. This resale value will be again determined by the next investor's anticipation of dividends and so on. Ultimately, the investment's value can be thought of as simply the present value of all of the future dividends the investment will provide. Since these are future dividends, its aggregate present value is equal to the present value of the investment. This present value is calculated using the previously covered principles of the time value of money> Here, the required rates of return by investors act as the relevant discount rate.

### PREFERRED STOCK VALUATION

Preferred stocks promise fixed dividends often forever, but sometimes for a fixed term. Perpetual preferred stocks promise to pay a constant dividend indefinitely. The value of the preferred share is simply the present value of the perpetual constant dividends.

$$V_p = \frac{D_p}{K_p}$$

Where:  $V_p$  = the current value of the preferred stock.

$D_p$  = the constant expected periodic dividend payment.

$K_p$  = the required rate of return on the preferred stock.

#### Example 9.1

A perpetual preferred promising an annual dividend of S.R. 8 with a required rate of return of 10% will trade for SR. 80.

$$V_p = \frac{8}{0.1} = SR80$$



## VALUATION OF COMMON STOCK

Just as for preferred stock, the value of a common (or ordinary) share is simply the present value of the expected dividends that the stock is likely to pay in the future. The difficulty in the case of common stocks is that the dividend stream is not known with certainty. This is where the skill of the analyst is tested, as he has to evaluate all aspects of the economy, the industry, and the firm, and then arrive at an 'educated' estimate of the most likely pattern of dividends. Once the magnitude of the dividends is estimated, computing the price of the stock is simply an application of the time value of money.

$$V_s = \frac{D_1}{(1 + K_s)} + \frac{D_2}{(1 + K_s)^2} + \dots + \frac{D^\infty}{(1 + K_s)^\infty}$$

Where:  $V_s$  = the value of the stock

$D$ 's = the dividends

$K_s$  = the required rate of return to common shares.

The above equation is a conceptual idea but requires some assumptions on the dividend pattern to make it practical. In the following discussion, stock price evaluation is done under three different operational assumptions. The analyst has to decide which assumption best fits the particular stock under evaluation (Other operational assumptions are beyond the scope of this manual).

### (1) Constant level dividends

Under this assumption dividends are expected to remain the same every year, much like a preferred share. Such an assumption is best defended in the case of a firm that is well established (a 'mature' company) and is not in a position to reinvest earnings for further growth. This implies that the management simply pays out all earnings as dividends.

$$V_s = \frac{D}{K_s}$$

Where  $D$  is the constant dividends paid each year.

#### **Example 9.2**

A British Company has been following a policy of paying constant dividends of GBP 2 per share. These have remained constant over the recent past and are likely to remain so into the foreseeable future. What is the value of the company's shares if the required rate of return is 15%.

$$V_s = \frac{2}{0.15} = \text{GBP } 13.33$$

## (2) Constant growth in dividends

This valuation model assumes that a stock's dividends will grow at a constant rate into the indefinite future. Such an assumption is valid in the case of a firm that has a stable dividend payout policy (by implication a stable reinvestment policy).

$$V_s = \frac{D_0(1+g)}{K_s - g} = \frac{D_1}{K_s - g}$$

Where  $D_0$  is the dividend paid in the last period and 'g' is the growth rate in the dividends. The constant growth model is widely known as the Gordon model, after Myron J. Gordon who developed it

### Example 9.3

Assume that X Corporation has just paid S.R.10 in dividend (that is  $D_0 = \text{S.R.10}$ ), and that dividends are expected to grow at 10% into the foreseeable future. The required return on this stock is 15%. The price of this stock should be:

$$V_s = \frac{10(1 + 0.10)}{0.15 - 0.10} = \text{SR}220$$

The constant growth rate can be estimated from the dividend payout policy and the return on the investments taken up by the firm. The following equation captures this:

$$g = (1 - \text{payout ratio}) \times ROE = b \times ROE$$

'b' is the proportion of earnings that are reinvested into new investments that are assumed to generate a return equal to ROE, the return on equity.

## 9.2 PRICE MULTIPLES

Price multiples are used by fundamental analysts to assess the relative merits of particular stocks or the market in general. These multiples divide the price of a stock by some other measure in relation to that stock, such as the earnings per share.

### 9.2.1 VARIOUS PRICE MULTIPLES

**Learning Objective 9.3.1** – Understand how analysts use various price multiple ratios

- Price/Earnings
- Price/Cash flow
- Price/Book value
- Price/Sales

The price/earnings ratio (P/E ratio) is an indicator of relative value. It is calculated by dividing the price by the most recent earnings per share. It is best used to compare firms within a similar industry. If one firm in an industry has a higher P/E ratio than another, the investor would consider the higher P/E firm to be more optimistically priced by the market and perhaps too

expensive.

Instead of earnings, analysts can potentially use other variables as the denominator. If the stocks being analyzed are start-up firms that have yet to show positive earnings, or loss-making firms, the price earnings ratio is an unsuitable multiple to use. Instead, the analyst may choose to use a price to sales multiple as a valuation guide. This simply divides the price by the amount of sales that are being generated on a per share basis.

Some analysts prefer to use a cash flow per share figure to earnings as the denominator, in the belief that cash flow is less open to accounting manipulation than the earnings per share. This is the price to cash flow multiple.

A price to book value multiple is often used to assess whether a particular stock is cheap. The price to book value multiple divides the stock price by the net assets per share as given in the firm's balance sheet. If this multiple gets close to 1, or falls below 1, it may indicate that the stock is trading at a low level and may be available at a bargain price.

## 9.3 TECHNICAL ANALYSIS

Fundamental analysis looks at all relevant information that is likely to give clues about the future performance of the firm. The information set includes ratio analysis as shown in the previous section, assessing the macroeconomic environment in which the firm operates, evaluating the quality of management and other similar facts. In contrast, technical analysis looks purely at the history of the stock price to determine predictable patterns, which can be exploited. Some fundamental analysts believe that any attempt to use past price information to predict the future is doomed to fail. If markets are functioning relatively efficiently, the stock price observed today must include all available information, which must necessarily include any information contained in past prices. However, technical analysis is not necessarily an alternative to fundamental analysis and can be viewed as complementary to looking at the fundamentals.

### 9.3.1 THE CHARACTERISTICS OF TECHNICAL ANALYSIS

**Learning Objective 9.4.1** – *Understand* the characteristics of technical analysis:

- Charting
- Market Fundamentals
- Price Evaluation
- Trading activity
- Sentiment indicators
- Flow of funds indicators
- Market structure indicators

Technical analysts rely heavily on charting past price movements from which attempts to isolate patterns are made. Technical analysts are, therefore, sometimes referred to as 'chartists'.

Other statistical methods such as moving averages are also employed by technical analysts. Many

of the tools used by technical analysts are ad-hoc and have little economic content. An example would be a trading rule that says, 'buy a stock if its current price is below the average for the last week and sell if the price is above the average for the past week'.

Technical analysis is an attempt to exploit recurring and predictable patterns in stock prices to generate trading profits. Technical analysts believe that shifts in market fundamentals can be discerned before the impact of those shifts is fully reflected in prices. Additionally, technical analysts think that they can exploit the slow adjustments to random fluctuations that accompany underlying trends.

In addition to the use of price charts, technical analysts also use a variety of indicators to predict the direction of future prices. These indicators attempt to identify whether the market is moving into, or out of, a bull phase of increasing prices. The indicators fall into three categories: sentiment indicators, flow of funds indicators and market structure indicators. Each indicator is assessed through one or more related numerical measures.

One measure that is used to assess the sentiment is the ratio of the average volume of declining shares to the average volume of advancing shares. A value greater than one would indicate net selling pressure and hence a bearish sentiment in the market obviously, a value of less than one indicates the opposite. The ratio of put options to call options is alternate measure used to indicate the sentiment in the market

Short interest or the volume of stocks sold short by investors and credit balances in Brokerage Accounts are common indicators based on the flow of funds. Paradoxically, an increase in short interest is considered bullish by some technical analysts as they reason that investors will have to buy the shares to cover their short positions in the future. An increase in credit balances could also signal a bull phase because it increases the liquidity that will be invested in the market.

The moving averages mentioned earlier are used as a indicators of market structure. A bullish signal is inferred when prices begin to move above their moving average. Breadth, computed as the spread between the number of advancing stocks and the number of declining stocks is also used as a market structure indicator.

## Review Questions: Asset Valuation Equity Investments

- 1 - **A share of common stock has just paid a dividend of SR15.00. If the expected long-run growth rate for this stock is 5 percent, and if investors require an 11 percent rate of return, what is the price of the stock?**
  - (a) SR 265
  - (b) SR 250
  - (c) SR 262.5
  - (d) SR 300
  
- 2 - **If the expected rate of return on a stock exceeds its required rate,**
  - (a) The stock should be sold.
  - (b) The company is probably not trying to maximize price per share.
  - (c) The stock is a good buy.
  - (d) Dividends are not being declared.
  
- 3 - **Which securities can be valued by dividing the annual dividend by the required rate of return?**
  - (a) Low coupon bonds
  - (b) Junk bonds
  - (c) Common stocks and preferred stock
  - (d) Preferred stocks only
  
- 4 - **According to the dividend growth model, if a company were to declare that it would never pay dividends, The share value would be**
  - (a) Based on earnings.
  - (b) Higher than similar firms since it could reinvest a greater amount in new projects.
  - (c) Zero.
  - (d) Can't be determined.
  
- 5 - **Dividend growth is a function of**
  - (a) Return on equity.
  - (b) The retention rate.
  - (c) The sales revenue growth rate.
  - (d) (a) and b).

- 6 - in 2011, an American company issued a \$100 par value preferred stock that pays a 8 percent annual dividend. Due to changes in the overall economy and in the company's financial condition investors are now requiring a 15 percent return. What price would an investor be willing to pay for a share of the preferred if first dividend is to be received one year from now?**
- (a) \$100.00
  - (b) \$53.33
  - (c) \$86.95
  - (d) \$92.59
- 7 - Using the constant growth model, an increase in the required rate of return from 16 to 19 percent combined with an increase in the growth rate from 8 to 11 percent would cause the price to**
- (a) Rise more than 3%
  - (b) Rise less than 3%.
  - (c) Remain constant
  - (d) Fall less than 3%.
- 8 - Manarat Company had a dividend payout ratio of 40% in 2010. The retention rate in 2010 was**
- (a) 40%
  - (b) 50%
  - (c) 60%
  - (d) 0%
- 9 - The P/E ratio for XYZ Company is 18, and the P/Sales ratio is 6.5. The industry P/E ratio is 30 and the industry P/Sales ratio is 8. Based on relative valuation( company ratios relative to the industry ratios) , The stock of XYZ company is**
- (a) Undervalued on the basis of relative P/E and relative P/S.
  - (b) Overvalued on the basis of relative P/E and undervalued on the basis of relative P/S.
  - (c) Undervalued on the basis of relative P/E and overvalued on the basis of relative P/S.
  - (d) Overvalued on the basis of relative P/E and relative P/S.
- 10 - A preferred stock will pay a dividend of SR 10 in the upcoming year, and every year thereafter, i.e., dividends are not expected to grow. The required return on this stock is 10%. Use the constant growth DDM to calculate the intrinsic value of this preferred stock.**
- (a) SR 10
  - (b) SR 100
  - (c) SR 90
  - (d) SR 110

**11 - A preferred stock will pay a dividend of SR 15 in the upcoming year, and every year thereafter, i.e., dividends are not expected to grow. You require a return of 9% on this stock. What is the intrinsic value of this preferred stock?**

- (a) SR 15
- (b) SR 166.67
- (c) SR 16.67
- (d) SR 30

# APPENDIX

This appendix is an additional and further understanding but not examined under CME – 1 Exam

## FORECASTING A FIRM'S EARNINGS PER SHARE

Because of the complexities of the economic cycle, the industry life cycle, and firm specific events it is difficult to forecast the future of a company. Investment banks and other financial firms employ security analysts whose sole occupation is to forecast the future performance of specific firms assigned to them. A given analyst will tend to focus on small groups of stocks, generally in the same industry or business area. These analysts will incorporate forecasts for economic indicators, such as inflation, national income growth, as well as industry market size, competition, and firm specific data on cost, management quality and financial leverage. They may even make personal visits to conduct interviews with the firms' executives. Based on these inputs the analyst prepares pro forma financial statements, similar to those discussed in Chapter 2, from which earnings and earnings growth are forecasted.

The Institutional Brokers' Estimate System (IBES) compiles the earnings growth estimates of different analysts that follow major publicly traded US companies and makes it available at a single place.

We can use the dividend discount model covered in Chapter 2 to obtain a forecast of next year's earnings. Remember that:

$$Price = \frac{D_0(1 + g)}{K - g}$$

Knowing the current price and dividend, we can infer the market's estimate of the growth in earnings per share.

### Example

ABC Corporation stock has just paid a dividend of SR2 per share and is trading for \$42. Investors require a 10% rate of return for ABC. What is the growth in earnings implied in the price?

$$\begin{aligned} 42 &= \frac{2(1 + g)}{0.10 - g} \\ \Rightarrow g &= 5\% \end{aligned}$$

# 10 Asset Valuation: Debt Instruments

## Introduction

### 10.1 Features of debt securities

- 10.1.1 Corporate bond variants
- 10.1.2 Calculating the price of a bond

### 10.2 Risks associated with investing in bonds

- 10.2.1 The risks faced by investors in bonds
- 10.2.2 Investing in bonds issued outside Saudi Arabia

### 10.3 Introduction to the valuations of debt securities

- 10.3.1 Price vs. Yield
- 10.3.2 Price vs. Maturity
- 10.3.3 Zero coupon bonds

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter introduces bond characteristics and illustrates the basics of debt security valuation using a discounted cash flow framework. The risks associated with investing in bonds are described and quantitative measures of risks are outlined.

## 10.1 FEATURES OF DEBT SECURITIES

A bond represents documentary proof of a borrowing and lending transaction and is in effect an IOU. The borrower of funds sells or issues the bond to the lender of funds. Covenants that accompany the bond provide full legal and other details of the transaction.

Three elements characterize a bond. The first is the maturity or redemption of the bond, which indicates the time period of the loan. The second is the face value or par value of the bond. This indicates the principal amount that the borrower agrees to repay at maturity. In the US most bonds have a par value of \$1,000. The third element is the coupon rate expressed as a percent of face value, indicating the periodic interest payments that the borrower promises to make over the life of the bond. Most bonds make semiannual coupon payments. For example a \$1,000 face value, 10 year bond, with a coupon rate of 8%, promises to make the following payments. \$40 every six months (4% of \$1,000) for 10 years, and the face value of \$1,000 at the end of the tenth year.

### 10.1.1 CORPORATE BOND VARIANTS

**Learning Objective 10.1.1** – *Understand* the various options that may be available in respect of Corporate Bonds:

- Call provisions
- Convertible Bonds
- Sinking fund provisions
- Coupon structures

**Call Provision.** Some bonds come with an embedded option giving the issuer the ability to call back the bond - repaying the principal prior to maturity. Such an option works in favor of the issuer or borrower, who will choose to refund the bond issue when interest rates fall. Investors will discount the price of callable bonds to reflect this disadvantageous feature.

**Convertible Bonds.** Some bonds come with an embedded option giving the buyer the option to convert the bond into a predetermined number of shares of the company. This option tends to work to the advantage of the buyers of the bond, resulting in the bond being priced at a premium to other equivalent, non-convertible bonds.

**Sinking Fund Provision.** As repayment of the entire principal at one moment in time can prove to be a burden, some lenders will insist that some part of the loan be repaid each year. This is known as a 'sinking fund' and the sinking fund provision stipulates the schedule under which the borrower will repay the principal on the loan.

**Types of Coupon Structures.** The types of coupon structure that can be designed are numerous. The two most popular types are fixed rate coupons - paying a set percentage of the nominal value over the life of the bond, or a floating rate coupon that varies based on some market rate of interest that is readily available, such as LIBOR (The London Interbank Offer Rate).

## 10.1.2 CALCULATING THE PRICE OF A BOND

**Learning Objective 10.1.2** – *Understand* and be able to calculate the price of a Bond (annual or semi-annual coupons)

The valuation of bonds is relatively easy compared to shares, because the size and timing of the payments that the bond makes over its life are known. A typical bond offers investors regular coupon payments (either annual or semi-annual) and the face value at maturity. The value of a bond should equal the present value of coupon payments plus the present value of its redemption payment. In mathematical form, the value of a bond paying annual coupons can be stated as:

$$P = \sum_{t=1}^{t=T} \frac{C_t}{(1+y)^t}$$

Where: P = the current value (market price) of the bond.

T = the remaining life of the bond in years.

C<sub>t</sub> = cash flows (coupon paid each year) or the principal at maturity.

y = required rate of return.

### Example 10.1

A SR1, 000 face value bond with a remaining life of 3 years and a coupon rate of 6% paid annually will have a market value of SR924.06 if the required return is 9% per year.

$$V_B = \frac{60}{1.09^1} + \frac{60}{1.09^2} + \frac{1060}{1.09^3} = \text{SR}924.06$$

This is an example of a bond trading at a discount to its par value, i.e. a bond whose market value is less than the par value.

The preceding example assumed that the coupon payments are paid annually. However, it is common for companies and governments to pay coupons to bondholders semi-annually. The following example illustrates the valuation of a bond that pays semiannual coupons.

### Example 10.2

A SR 1,000 face value bond with a coupon rate of 6%, paid semiannually has 3 years left to maturity. What is the price of the bond if the required return is 9% per year?

The coupon payments will be SR 60 per year paid in two 6 monthly installments of SR 30 each. The 6 month interest rate is 4.5% (9%/2). Discounting the payments we have a price of SR922.63.

$$V_B = \frac{30}{1.045^1} + \frac{30}{1.045^2} + \frac{30}{1.045^3} + \frac{30}{1.045^4} + \frac{30}{1.045^5} + \frac{1030}{1.045^6} = SR922.63$$

## 10.2 RISKS ASSOCIATED WITH INVESTING IN BONDS

### 10.2.1 THE RISKS FACED BY INVESTORS IN BONDS

**Learning Objective 10.2.1** – *Understand* the various risks faced by an investor in Bonds

- Interest rate risk (Price risk)
- Inflation risk
- Liquidity risk
- Default risk

An investor who purchases bonds faces risks from a variety of sources. These include inflation risk, default risk, liquidity risk and interest rate risk.

#### Interest Rate Risk or Price Risk

The market price of a bond is inversely proportional to the level of interest rates. When interest rates fall, bond prices increase and conversely when interest rates rise, bond prices decrease. As interest rates fluctuate randomly in the economy, the bond will experience random price movements. This random variation in price is termed price risk. Bond investors therefore experience price gains when interest rates fall and suffer price losses when interest rates rise.

#### Inflation Risk

Inflation risk is related to the concept of interest rate risk discussed above. As inflation increases so do interest rates, which then affects bond prices. While most financial assets are influenced by inflation, bonds are affected most severely.

#### Liquidity Risk

A liquid security market is where an investor is able to sell a security at short notice without having to offer a substantial price discount. A market for securities that are actively traded tend to be liquid. Bond markets, especially corporate bond markets tend to be thin with infrequent trading. Bondholders wishing to sell in such markets may have to offer a price discount and therefore suffer a loss to attract buyers.

## Default Risk

When a corporation that borrows funds by issuing bonds is unable to make the promised interest and principal payments, the bond is said to be in default. The likelihood that a bondholder may lose his money through such non-payment is termed default risk. While government bonds do not suffer from this problem (because they can ultimately increase taxes or simply print money to repay the bonds), all corporate bonds have some amount of default risk, albeit in varying degrees. Assessing the likelihood of default is not an easy task as it requires a thorough analysis of the financial performance of the borrowing company. Fortunately, for bondholders, a number of financial companies such as Moody's and Standards and Poor's provide rating services for a fee.

These rating agencies take into consideration financial and non-financial factors in assigning a credit rating to the company. These include amongst others, the efficiency of management, industry competition, product line diversification, leverage (debt) ratio, call conditions, employee relations, and various other financial ratios. The rating is intended to assess the ability of the firm to meet its financial obligations.

The following table shows the bond or credit rating system as applied by two of the major rating agencies, Moody's and Standard and Poor's. As can be seen bonds are divided into two large groups - investment grade bonds and speculative bonds. (It should be noted that there are numerous rating agencies besides Moody and Standard and Poor's such as: Fitch, which has a strong presence in the Gulf region

### Moody's and Standard and Poor Bond Rating System

| Rating system |                            | Description  |
|---------------|----------------------------|--|
| <b>Moody</b>  | <b>Standard &amp; Poor</b> | "Investment Grade"   |
| Aaa           | AAA                        | Highest quality, 'triple A' bonds having the highest margin of safety for the payment of principal and interest.   |
| Aa            | AA                         | Quality levels are lower than the above 'triple A' bonds; the bonds in this and previous category are called high quality bonds.   |
| A             | A                          | Top of the medium quality category, which is good credit quality, reflecting the high ability to meet obligations, although bonds in this category are more affected than previous categories, by adverse conditions |
| Baa           | BBB                        | Middle of the medium quality category. These bonds have satisfactory level of safety, although activity levels and adverse economic conditions may affect the ability of the company to meet its obligations.        |
|               |                            | "Speculative"  |
| Ba            | BB                         | The lowest level of the medium quality category, it is a level that reflects higher probability of default if the company faces adverse conditions.  |
| B             | B                          | Default risk is higher than previous category, payment of interest and principal is uncertain if economic conditions worsen.   |

Investment grade bonds are of high quality and pose a low level of default risk. These ratings can be important to many mutual fund and institutional investors, as their charters limit them to investment in investment grade bonds. The second category consists of speculative grade bonds reflecting a high degree of default risk. This latter category of bonds is sometimes referred to as 'junk bonds'.

## 10.2.2 INVESTING IN BONDS ISSUED OUTSIDE SAUDI ARABIA

**Learning Objective 10.2.2** – *Understand* the additional risks faced by an investor when investing in bonds issued outside Saudi Arabia

In today's international global market investors can purchase bonds issued in other parts of the world. Despite the attractions of diversification, investing in bonds issued outside Saudi Arabia presents additional risks.

The first is the political risk in the country of the bond's issue. Governments can (and do) change and economic activity varies, potentially resulting in changes in interest rates and the default risk rating of the bonds that have been issued from that country.

Linking into the political risk, the way the overseas economy develops and the relationship with the Saudi economy will inevitably result in foreign currency fluctuations. This could have an adverse effect on the value of the bonds in Saudi terms. Potentially such developments could result in the imposition of foreign exchange controls, and this could restrict the ability for a Saudi investor to sell their overseas bonds and exchange the proceeds into Saudi Riyals.

When investing overseas, there may also be a requirement to separate the legal ownership of the bonds (the name entered on the register of bondholders) and the beneficial ownership of the bonds. The beneficial owner is entitled to all of the coupons and capital gains the bonds may deliver, but these benefits will initially be received and then remitted onwards by the separate legal owner (probably a local custodian). This might have ramifications on the speed with which the coupons and sale proceeds are remitted, as well as the danger that the custodian could collapse and the bonds may be sold to satisfy the demands of their creditors.

Other potential risks that may have an impact on a Saudi investor holding bonds issued overseas include position limits that limit the percentage of a bond issue that may be held by a single investor, and investment restrictions that might restrict investors to certain types of investor.

## 10.3 INTRODUCTION TO THE VALUATION OF DEBT SECURITIES

We saw earlier in this chapter that the basic principle of bond valuation is an exercise involving discounting back future cash flows. However, for some types of bonds the future payments may not be fixed, for example a bond that pays coupons tied to a market interest rate or a bond that has built in embedded options such as a callable bond or convertible bond. Special considerations involving the theory of options may be necessary to price such debt instruments.

### 10.3.1 PRICE VS. YIELD

**Learning Objective 10.3.1** – *Understand* the relationship between the price of a bond and its yield

The price of a bond is dependent on the discount rate used, and this discount rate is the yield required by investors. An increase in required yield will lead to a decline in the bond's price, because the future payments will be discounted at a greater rate, resulting in lower present values. Similarly, a decrease in required yield will result in an appreciation of the bond's price. Bond prices and yields are inversely related.

This is illustrated in the following example.

#### **Example 10.3**

Consider a SR1,000 face value, 5 year, 8% coupon bond that pays coupons annually. If the yield to maturity changes from 10% to 10.5% the bond's price will fall from SR924.18 to SR906.43.

Price when yield is 10%:

$$P = \frac{80}{1.10^1} + \frac{80}{1.10^2} + \frac{80}{1.10^3} + \frac{80}{1.10^4} + \frac{1080}{1.10^5} = SR924.18$$

Price when yield in 10.5%:

$$P = \frac{80}{1.105^1} + \frac{80}{1.105^2} + \frac{80}{1.105^3} + \frac{80}{1.105^4} + \frac{1080}{1.105^5} = SR906.43$$

## 10.3.2 PRICE VS. MATURITY

**Learning Objective 10.3.2** – Understand the relationship between the price of a Bond and its maturity

Bond prices also change with the passage of time. A bond issued at a discount to its par value will tend to appreciate as it approaches maturity, while a bond issued at a premium will depreciate in price as it approaches maturity.

### Example 10.4

For the SR1, 000 face value, 8% coupon bond that pays coupons annually considered earlier, assume an investor purchased the bond at a price of SR924.18, when it had 5 years to mature and its yield to maturity was 10% per year. At the end of one year, assuming the yield to maturity has not changed, the bond price will have appreciated to SR936.60.

$$P = \frac{80}{1.10^1} + \frac{80}{1.10^2} + \frac{80}{1.10^3} + \frac{1080}{1.10^4} = \text{SR}936.60$$

Note now the bond only has four years left to maturity.

The bond price has also a relation with its current yield, which is calculated as the ratio of the bond annual coupon payment to the market price of the bond:

$$\text{Current yield} = \frac{\text{Annual coupon payment}}{\text{Bond market price}}$$

Applying to example 10.4, the current yield is  $\frac{80}{924.18} = 8.66\%$

## 10.3.3 ZERO COUPON BONDS

**Learning Objective 10.3.3** – Understand the characteristics of zero coupon Bonds and the calculation of prices

Zero coupon bonds are simply bonds that pay no coupons at all. They are perhaps the simplest form of lending and borrowing. The purchaser of the bond pays the price today (lends) and receives the face value (which effectively represents the repayment of the loan plus interest) at the future date. Since these bonds have no coupons, the price of the bond is simply the discounted value of the face value of the bond.

### Example 10.5

A ten year zero coupon bond with a face value of SR10, 000 and trading to yield 8.5% will be priced at SR 4,422.85.

$$P = \frac{10,000}{1.085^{10}} = \text{SR}4,422.85$$

## **REVIEW QUESTIONS: ASSET VALUATIONS: DEBT INSTRUMENTS**

- 1 - Which of the following factors are likely to increase market interest rates?**
  - (a) Corporations increase their demand for capital.
  - (b) Households become less willing to save.
  - (c) Expected inflation increases.
  - (d) All of the above.
  
- 2 - Assume that you wish to purchase an American corporate bond with a 10-year maturity, an annual coupon rate of 10 percent, a face value of \$1,000, and annual interest payments. If you require an 8 percent nominal yield to maturity on this investment, what is the maximum price you should be willing to pay for the bond (to the nearest \$)?**
  - (a) \$ 890
  - (b) \$ 1,000
  - (c) \$ 1017
  - (d) \$ 1,134
  
- 3 - The value of a corporate bond can be derived by calculating the present value of the interest payments and the present value of the face value at the bond's**
  - (a) Current yield.
  - (b) Coupon rate.
  - (c) Required rate of return.
  - (d) Effective rate.
  
- 4 - An American firm has an outstanding bond issue that has 6 years remaining until maturity. The bonds were issued with a 6 percent coupon rate and a par value of \$1,000. Because of increased risk the required rate has risen to 10 percent. What is the current value of these bonds?**
  - (a) \$ 656.40
  - (b) \$ 899.00
  - (c) \$ 825.79
  - (d) \$ 569.50

- 5 - Zero coupon bonds issued by corporations**
- (a) Are initially sold at par values (a zero discount)
  - (b) Are initially sold for a price above par value
  - (c) Are initially sold below par value
  - (d) Pay return immediately at purchase time.
- 6 - The market price of a bond is \_\_\_\_\_ to the level of interest rates.**
- (a) Positively related
  - (b) Negatively related
  - (c) Unrelated
  - (d) Indirectly related
- 7 - When a fixed income security is being traded at the price above its face value it is trading**
- (a) At a discount.
  - (b) At par.
  - (c) At a premium.
  - (d) Flat
- 8 - Which of the following is not a major rating agency for bonds?**
- (a) Moody's
  - (b) Standard & Poor's
  - (c) Fitch Investor Services
  - (d) Value Line
- 9 - The annual interest paid on a bond relative to its prevailing market price is called its**
- (a) Promised yield.
  - (b) Yield to maturity.
  - (c) Coupon rate.
  - (d) Current yield

# 11 Derivatives

## Introduction

### 11.1 Derivative markets and instruments

11.1.1 Types of derivative contracts

### 11.2 Forward contracts

11.2.1 Characteristics of forward contracts

### 11.3 Futures contracts

11.3.1 Characteristics of futures contracts

11.3.2 Margin and marking to market

11.3.3 Differences between futures and forward contracts

### 11.4 Option contracts

11.4.1 Characteristics of option contracts

### 11.5 Swap contracts

11.5.1 Interest rate swaps

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter will outline the nature of derivative securities such as options and futures contracts. In addition, the chapter provides some basic features of the markets in which these contracts trade.

## 11.1 DERIVATIVE MARKETS AND INSTRUMENTS

Securities whose value or payoff depends on other assets are called derivative securities. Two broad types of derivative securities are regularly traded on exchanges around the world - option contracts and futures contracts. Options and futures have payoffs that depend on the value of assets such as commodities, stocks and precious metals. For example, a three month futures contract on West Texas Crude Oil, or an option to buy IBM shares in six months. These securities can be used very effectively to manage risk or can be put to speculative uses. The characteristics of these contracts and the structure of the markets in which they trade are described in this chapter.

### 11.1.1 TYPES OF DERIVATIVE CONTRACTS

**Learning Objective 11.1.1** – *Know* the basic types of derivative contracts:

- Forwards
- Futures
- Options
- Swaps

Derivative contracts can either trade over the counter (negotiated between two parties) or trade on an organized exchange such as the Chicago Board of Trade. Exchange traded products are relatively easy to access even for small investors, whilst over the counter (OTC) trading normally takes place between large corporate or wealthy individuals.

Forwards and futures involve an agreement today for the purchase and sale of the underlying commodity at some specified future date at a pre-determined price. Both parties to the contract are required to fulfill their obligations under the contract.

Options on the other hand are asymmetric contracts, in that, an option gives the choice to the holder to exercise only if it is in his interest to do so. A call option to purchase a share of IBM at the end of 3 months for an exercise price of \$50, gives the option holder a choice - he will only exercise the option if the price of IBM shares at the end of 3 months exceeds \$50. A put option to sell a share of IBM at the end of 3 months at an exercise price of \$50, gives the put holder a choice - he will only exercise the option if the price of IBM is less than \$50 at the end of three months.

Whereas there is no initial exchange of money between buyer and seller in the case of a forwards or futures contracts, option buyers have to pay a premium to the option sellers at the inception of the contract.

A swap is an over the counter contractual agreement between two parties. The agreement will oblige the parties to exchange periodic payments based on movements on some underlying asset. For example, an interest rate swap obliges the parties to make payments on the basis of specific interest rates on a notional principal amount over a specified period of time.

Derivative securities serve a number of important functions. They allow individuals and firms to hedge their risk by taking appropriate positions in the derivative markets. These markets therefore help in spreading risk across market participants. Investors who wish to speculate on future price movements find it very convenient and cost efficient to use the derivative markets as opposed to the spot market for the underlying asset.

## 11.2 FORWARD CONTRACTS

A forward contract is a deferred delivery contract, where two parties (buyer and seller) agree to deliver a commodity or financial security at a specific date in the future for a price that is agreed upon today.

### 11.2.1 CHARACTERISTICS OF FORWARD CONTRACTS

**Learning Objective 11.2.1** – *Understand* the characteristics of Forward Contracts and the risks undertaken by each party

The seller of a forward is agreeing to deliver the underlying asset at the future date, and is called the short side of the contract. The buyer, who agrees to accept delivery and pay the agreed price, is called the long side of the contract. Forward contracts tend to be custom made contracts entered into between the two parties and thus classified as over the counter products.

#### **Example 11.1**

Aramco entering into a contract with Saudi American Bank, to purchase €1.25 million, 95 days in the future, for a price of SR 4.22 per € is an example of a forward contract. No exchange takes place at the time of the initiation of the contract. At the end of 95 days, Aramco will pay SR 5.275 million ( $€1.25 \text{ million} \times 4.22 \text{ SR/€}$ ) and receive the promised €1.25 million from Saudi American Bank.

Unlike options, in a forward trade both sides to the contract are obliged to meet the contractual terms of the agreement.

Forward contracts can be used as a tool to eliminate risk. These risks may include commodity prices risk, currency exchange rate risk and interest rates risks. Returning to the Aramco example, Aramco can be assured that it will obtain the desired euros at the contracted price of 4.22 SR/€ at the end of 95 days, regardless of whether the price of the € appreciates or depreciates over this period.

## 11.3 FUTURE CONTRACTS

Future contracts are in principle identical to forward contracts; they only differ in the ways in which they trade. Whereas forward contracts are custom made to suit the needs of the individual parties to the contract, future contracts are standardized contracts that trade on formalized exchanges according to rules established by the exchange.

### 11.3.1 CHARACTERISTICS OF FUTURE CONTRACTS

**Learning objective 11.3.1** – *Understand* the characteristics of future contracts and the risks undertaken by each party

Future contracts can be used as a hedging tool to shed price risk. Consider a wheat farmer who is unsure of the price at which the wheat can be sold when it is harvested. By entering into a short futures contract he can effectively lock in the selling price. In contrast, a food processing company that buys wheat can enter into a long futures contract to fix the price at which wheat will be purchased. Futures markets are also used by speculators who trade based likely moves in asset prices. Regardless of the motivation of entering into a futures transaction, the two sides to the contract are entering into obligations. If the buyer decides he no longer wants to take delivery of the underlying, he must take an opposite position by trading the contract in the market. Similarly, the seller is obliged to deliver the underlying asset in exchange for the contracted amount, unless he takes an opposite position.

The authorities of the exchanges on which the futures contracts are traded establish the rules relating to the individual contracts. These include:

- a. The unit of the commodity or the financial asset that is to be delivered on each contract. For example, each T-bill futures contract traded at the Chicago Board of Trade is for delivery of one million dollars face value of the 90 day T-bills.
- b. The quality of the commodity to be delivered. For example the gold contract traded on COMEX in New York calls for the delivery of 99.9% purity.
- c. The delivery months and dates are specified.
- d. The sequence and mode of delivery.
- e. Margin requirements and marking to market. This is considered in the next section.

## 11.3.2 MARGIN AND MARKING TO MARKET

**Learning Objective 11.3.2** – *Know* how margin is used to reduce risk and the concept of marking to market

When they first get involved in a futures contract, each party to the futures contract must make a good faith deposit equal to a set percentage of the value of the underlying asset. This is the margin. Subsequently, at the end of each trading day, profits and losses to individual traders on each side of the contract are computed. Profits are added to the margin of the winners, and deducted from the margin of the losers.

An illustrative example should help in understanding the marking to market procedure.

### **Example 11.2**

Consider a farmer who goes short one contract for December Corn at a futures price of \$2.10 per bushel on the Chicago Board of Trade.

The contract size for the corn contract is 5,000 bushels. Assume he paid a margin of 10%, which in this case is \$1,050 ( $= 10\% \times \$2.10 \times 5,000$ ). If the futures price of the contract closes at \$2.00 at the end of the trading day, the farmer profits by \$500 ( $= 5,000 \times [\$2.10 - \$2.00]$ ). His margin account will be credited the \$500 profit, and will now total \$1,550.

The trader on the other side of the contract who is long has experienced a loss of \$0.10 per bushel or a loss of \$500 on the contract. This will be deducted from his margin money.

As seen in the above example, the long side loses and the short side gains when the underlying asset price decreases. Conversely, the long side of a futures contract gains while the short side loses when the price of the underlying asset increases. As losses accumulate and the margin decreases to a critical amount (called the maintenance margin), a trader is likely to get a call from his broker to add more funds to his margin account. In the futures market, margin means that losses are settled as they happen, so margin deposits serve to reduce the risk of default.

It is interesting to note that in the futures markets, unlike the forward markets, contracts rarely reach physical delivery. Instead, participants offset their trades, longs taking short position in the same contract and shorts offsetting their positions by taking out long contracts prior to the delivery date- this is referred to as 'closing out' their positions.

## 11.3.3 DIFFERENCES BETWEEN FUTURES AND FORWARD CONTRACTS

**Learning Objective 11.3.3** – *Understand* the differences between forward contracts and future contracts:

- Default risk
- Marketability risk
- Transactions cost
- Daily settlement
- Delivery
- Flexibility
- Price fluctuation limits

Futures contracts are essentially standardized forward contracts that are traded on derivatives exchanges. There are, however, some key differences that are highlighted below.

### **Default Risk:**

Forwards do not protect the contracting parties against default risk. Parties to a forward contract must assess the ability and willingness of the other to honor its contract obligations.. Futures contracts offer protection against default risk since they are traded on organized exchanges, where clearing houses provide the required protection by collecting and managing margin deposited from each trader.

### **Marketability Risk**

Traders in the futures market can enter and exit the market with relative ease by taking a reverse transaction or position. In a forward contract, withdrawal from the contract requires renegotiating with the other party or entering into a new contract with a third party.

### **Transaction Costs**

Transaction costs are much lower when the contract is traded on an organized exchange. As a result, futures contracts have lower transaction costs than forward contracts.

### **Daily Settlement**

As mentioned earlier, the gain or loss on a futures contract is settled at the end of every trading day through margin. This serves to reduce the risk of default, since losses are not allowed to accumulate to a point where the trader is unable to pay. In a forward market, settlement is done only once at the end of the contract.

### **Delivery**

Delivery rarely takes place in the futures market; most contracts are closed out prior to the delivery date. In contrast, most forward market transactions end with the physical delivery of the underlying asset

## Flexibility

The standardized nature of futures markets removes a great deal of flexibility. Forward markets can be customized and tailored to the precise needs of the participants.

## Price Fluctuation limits

The futures exchange may set limits on the amount by which future prices may change from one day to the next. The exchange may increase or reduce these limits in response to perceived changes in the price volatility of the contract.

# 11.4 OPTION CONTRACTS

## 11.4.1 CHARACTERISTICS OF OPTION CONTRACTS

**Learning Objective 11.4.1** – *Understand* the characteristics of option contracts and the risks undertaken by each party

Options mainly come in two forms: Call options and Put options.

The holder of a call option has the right, but not the obligation, to purchase the underlying asset at a pre-specified price (called the 'strike price' or the 'exercise price') on, or up to a specific date (expiry date) in the future. The underlying asset could be an individual stock, stock index, currency, gold, or some other asset

### Example 11.3

A November 21st call option on Intel with an exercise price of \$85, gives the holder of the option the right but not the obligation to buy one share of Intel stock (from the seller or writer of the call option) for \$85 on November 21st.

It would only be profitable for the holder to exercise the option on November 21st if the market price of Intel exceeds \$85.

If an option is not exercised by the expiry day, the option expires worthless. If the option can be exercised at any time up to the expiry date, the call is said to be an 'American Style' option. If the option can be exercised only on the expiry day, it is said to be a 'European Style' option.

A put option gives the holder the right but not the obligation to sell the underlying asset to the put seller on the expiry date (if it is an European style put) or any time up to the expiry date (if it is an American style put) at the option's exercise price. Put options can be exercised profitably if the asset value declines below the exercise price.

**Example 11.4**

A November 21st put option on Intel with an exercise price of \$85, entitles the holder to sell stock of Intel to the put writer for \$85. It will be profitable for the put option holder to exercise his option if the market price of Intel declines to below \$85.

The investor selling or writing an option charges a price for the option that he is granting to the buyer. This price at which the option trades is also called the option premium. An investor who has purchased an option need not wait until expiry to realize his profit, he can sell his option to another investor in the options market. Similarly, an investor who has sold an option can buy an option to offset his position. Options are traded on organized exchanges such as the Chicago Board Options Exchange (for stocks), the Philadelphia Exchange (for currencies). For other commodities and securities, options are traded in a number of other exchanges in the US and around the world. As with futures, it is the individual exchanges that define and standardize the options contracts, as well as setting the rules under which the options are traded.

The financial press carries market prices for options on a variety of underlying assets. The table below provides details for options trading on Intel stock at the Chicago Board Options Exchange (CBOE) as reported in the Wall Street Journal for three different exercise prices and three expiry months.

**WSJ quotation - Options on Intel Stocks**

| Intel | Strike | Exp. | Vol. | Call<br>3 p.m. | Vol. | Put<br>3p.m.     |
|-------|--------|------|------|----------------|------|------------------|
| 80,25 | 75     | Jan. | 712  | 11             | 35   | 5,75             |
| 80,25 | 80     | Oct. | 2542 | 3,25           | 2360 | 7,125            |
| 80,25 | 85     | Oct. | 4986 | 1,375          | 354  | 7 <sup>1/8</sup> |
| 80,25 | 85     | Nov. | 1630 | 3,5            | 197  | 8,75             |

The second column indicates the closing price of Intel stock - the underlying asset on which the option is written. Volume (Vol.) refers to the number of calls or puts traded on the previous day. The closing call and put premiums are shown in columns 5 and 7. The closing price for the January \$75 strike call contract on Intel was \$11 and the put for the same exercise price had a premium of \$5.75. On the CBOE, each stock option contract is for the delivery of 100 shares, so an investor purchasing a call option would have to pay  $100 \times \$11 = \$1,100$ , while a put contract would cost  $100 \times \$5.75 = \$575$ .

The relationship between the exercises price and the market price of the underlying determines whether the option is profitable or not. The call option is said to be in the money if its exercise rice is lower than market price, at the money if the two prices are equal and, out of the money if the exercise price is higher than the market price of the underlying for put option the reverse is true.

# 11.5 SWAP CONTRACTS

A swap is a contractual agreement between two parties under which each agrees to make periodic payments on the basis of some underlying asset price or reference rate over a specified period of time. A swap based on interest rates is outlined in the next section.

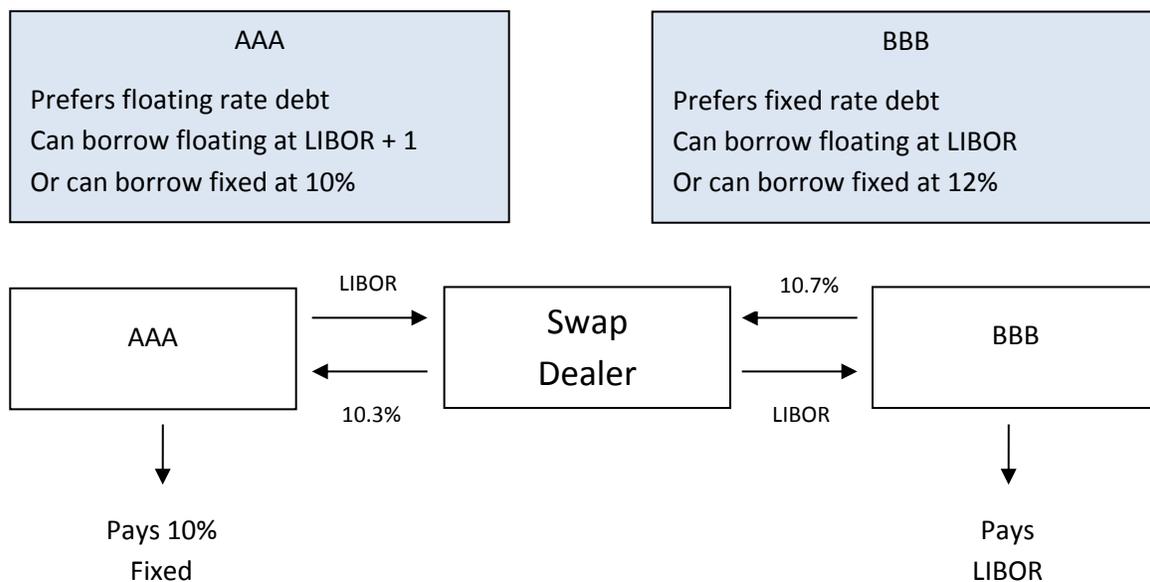
## 11.5.1 INTEREST RATE SWAPS

**Learning Objective 11.5.1** – *Understand* the characteristics and basic structure of an interest rate swap

A common form of swap is an interest rate swap in which one party makes a fixed interest rate payment while the other makes a floating rate payment - sometimes referred to as a fixed for floating swap. Market participants use interest rate swaps to transform one type of interest liability (such as a fixed rate liability) into another (such as a floating rate liability).

The following example shows the basic structure of an interest rate swap. Three participants are involved, AAA and BBB are corporations interested in entering into the swap agreement and they are brought together via an intermediary - the swap dealer. AAA prefers floating rate funding but has a relative advantage over BBB in the fixed rate market (spread of 2%), whereas BBB desires fixed rate funding but has a relative advantage over AAA in the floating rate market (spread of 1%). The swap dealer recognizes the opportunity for everyone to benefit by joining forces. AAA issues fixed rate bonds, while BBB issues floating rate bonds, each then agrees to assume the liability of the other- this is the swap.

### Interest Rate Swap



## Review Questions: Derivatives

- 1- **An option which gives the holder the right to sell a stock at a specified price at some time in the future is called a(n):**
  - a. Call option
  - b. Put option
  - c. Covered option
  - d. Transaction option
  
- 2- **The seller of a forward contract has:**
  - a. an obligation to a standardized delivery to the buyer of the contract
  - b. an option not an obligation to a standardized delivery to the buyer of the contract
  - c. an obligation to a tailored made (customized) delivery to the buyer of the contract
  - d. an option not an obligation to a tailored made (customized) delivery to the buyer of the contract
  
- 3- **Which of the following is false?**
  - a. Futures contracts trade on a financial exchange.
  - b. Futures contracts are more liquid than forward contracts.
  - c. Futures contracts allow fewer delivery options than forward contracts.
  - d. Futures contracts are marked to market.
  
- 4- **Which of the following does the most to reduce default risk for futures contracts?**
  - a. Flexible delivery arrangements.
  - b. Credit checks for both buyers and sellers.
  - c. Marking to market.
  - d. High liquidity.
  
- 5- **A put option has a strike price of \$35. The price of the underlying stock is currently \$42. This put option is:**
  - a. In the money.
  - b. At the money.
  - c. Out of the money.
  - d. Near the money
  
- 6- **A call option with a strike price of \$55 can be bought for \$4. What will be your net profit if you sell the call and the stock price is \$52 when the call expires?**
  - a. -\$4.
  - b. \$3.
  - c. \$4
  - d. -\$7.

- 7- **Which of the following has the right to sell an asset at a predetermined price?**
- a. A put writer.
  - b. A put buyer.
  - c. A call writer.
  - d. A call buyer.
- 8- **Which of the following is potentially obligated to sell an asset at predetermined price?**
- a. A call buyer.
  - b. A call writer.
  - c. A put buyer.
  - d. A put writer.
- 9- **A tool for managing interest rate risk that requires exchange of payment streams is a**
- a. Futures contract.
  - b. Macro hedge.
  - c. Forward contract.
  - d. Swap.
- 10- **One advantage of using swaps to eliminate interest rate risk is that swaps**
- a. Are less costly than futures.
  - b. Are more liquid than futures.
  - c. Are less costly than rearranging balance sheets.
  - d. Have better accounting treatment than option.

# 12 Foundations of Investment Decision Making

## Introduction

### 12.1 The investment setting

- 12.1.1 The components of required return
- 12.1.2 The risk free real rate
- 12.1.3 The inflation premium
- 12.1.4 The risk premium
- 12.1.5 The relationship between risk and return

### 12.2 Introduction to portfolio management

- 12.2.1 Diversification
- 12.2.2 Calculating risk and return in a portfolio

### 12.3 Introduction to asset pricing models

- 12.3.1 Systematic and non – systematic risks
- 12.3.2 The capital asset pricing model
- 12.3.3 The required rate of return using (CAPM)

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.



# INTRODUCTION

Investment decision-making is done on the basis of two criteria: the expected return and the risk associated with the investment. Investors would like to maximize the former while minimizing the latter. This chapter provides candidates with the background on return and risk necessary to make investment decisions. It also provides an overview of portfolio management and the Capital Asset Pricing Model (CAPM).

## 12.1 THE INVESTMENT SETTING

### 12.1.1 THE COMPONENTS OF REQUIRED RETURN

**Learning Objective 12.1.1** – *Understand* the concept of a required rate of return and the components from which it is derived:

- Real risk free rate
- Inflation premium
- Risk premium

When individuals choose to invest their funds in specific assets or securities they have a threshold rate of return they would like to achieve. This is often referred to as the required rate of return for that investment. This required rate of return can be considered to be made up of three components: The risk free real rate, a premium for inflation risk, and a premium for the risk inherent in the investment.

$$\text{Required Return} = \text{Risk Free Real Rate} + \text{Inflation Premium} + \text{Risk Premium}$$

### 12.1.2 THE REAL RISK FREE RATE

**Learning Objective 12.1.2** – *Understand* what is meant by and the effects of the real risk free rate

The risk free real rate is the return that would be required if there were no inflation and no risk. It can be thought of as the bare minimum that must be generated by an investment in any circumstances.

### 12.1.3 THE INFLATION PREMIUM

**Learning Objective 12.1.3** – *Understand* what is meant by and the effects of inflation premium

The inflation premium is required because inflation erodes the purchasing power of money, and the investor must be compensated for that erosion in the return on his investment.

It is helpful to note that there is a difference between real rates (as encountered above) and nominal rates. Nominal rates incorporate an inflation premium - real rates do not. If an investor would like to make a real rate of return of 5% (net of inflation), and he expects inflation to be 4%, then he should make a nominal return of approximately 9%. The precise relationship between nominal and real rates is shown below.

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

### **Example 12.1**

If a depositor earns 15% on his bank account and inflation turns out to be 6%, what is his real rate of return?

Here 15% is the nominal rate, and 6% the inflation rate. Substituting in the above equation and solving for the real rate, gives us 8.49% (The nominal return is approximately 9%).

## **12.1.4 THE RISK PREMIUM**

**Learning Objective 12.1.4** – *Understand* what is meant by and the effects of risk premium

Finally, since risk is undesirable and unpredictable, the investment must provide a reward for the risk borne. Investors are in general, risk averse, which means that they will avoid risk or must be compensated for bearing risk. The larger the risk of an investment, the larger must be the risk premium that must be promised. The risk premium of an investment is defined as the rate of return of the investment in excess of the return of a risk free investment, such as the purchase of government T-bills.

## **12.1.5 THE RELATIONSHIP BETWEEN RISK AND RETURN**

**Learning Objective 12.1.5** – *Understand* the relationship between risk and reward

Equity investments are generally felt to be risky, but offer the potential to deliver high returns if held long-term. Relative to other investments (such as bonds and money market investments), and depending on the type of company (newly created or more established), the risk/reward profile is categorized as medium to high.

Bonds are generally considered to be less risky than equities, but offer less potential for substantial returns. Indeed, for highly rated bonds like US treasury Bonds where the risk of default is low, investors can be virtually certain of the yield that their investment will deliver as long as they hold their bonds to maturity. If the bonds are sold before they reach maturity, there is a danger that their market value may be below the par value, bringing about a capital loss and the potential to adversely impact the investor's yield.

Investments like cash deposits and 'treasury bills are low risk, relatively secure and deliver income, but provide little scope for capital growth. While it is intuitively clear that higher risk must be accompanied by higher returns, it is not at all clear what the quantitative relationship should be. However, guidance is available from advances in portfolio theory and the Capital

Asset Pricing Model (CAPM). Broadly, this stipulates that risk can be sub-divided into two types. The first is called market risk. Market risk is the risk that all investments are subject to as a result of the overall economic and political environment – for example a political crisis or general recession will have a negative impact on all investments. This risk is also known as Systematic Risk or non – diversifiable.

The second type of risk that an investment faces is specific to only that investment. This investment specific risk can be diversified through holding a wide range of individual companies' shares, because unexpected losses made on one investment are offset by unexpected gains on another. For a diversified portfolio of investments, where the investment specific risks have been removed, only the market risk will remain. The investment specific risk is also known as the unsystematic risk or diversifiable risk.

## 12.2 INTRODUCTION TO PORTFOLIO MANAGEMENT

### 12.2.1 DIVERSIFICATION

**Learning Objective 12.2.1** – *Understand* diversification as a portfolio management tool

As mentioned earlier in this chapter, diversification enables investors to reduce or remove investment specific risk. By efficiently diversifying the investments held in an investor's portfolio, the investor can minimize risk for a given target level of return. In the following section, we will look at how the correlation of returns from investments impacts the degree of diversification. Combining assets that are negatively correlated (i.e. tend to move in opposing directions) will maximize the benefits of diversification.

### 12.2.2 CALCULATING RISK AND RETURN IN A PORTFOLIO

**Learning Objective 12.2.2** – *Know* the components used to calculate the risk and return on a portfolio:

- Proportion of funds invested in each asset
- The return and risk of each asset
- The relationship between the return of the various assets (correlation)

Note: Candidates are not expected to calculate the Portfolio Risk (standard deviation)

To compute the risk and return of a portfolio the following inputs are required:

- i. The proportion of funds invested in each asset
- ii. The return and risk of each asset in the portfolio. The risk is generally quantified by the standard deviation of returns.
- iii. The manner in which the return of one security is related to the return of other securities in the portfolio. This relationship is called correlation. The measure used is the correlation coefficient, that will lie somewhere between  $-1$  and  $+1$ . A correlation coefficient of  $-1$  is perfect negative correlation, and a correlation coefficient of  $+1$  is perfect positive correlation.

## Calculating Return

The return on a portfolio is computed as a weighted average of the returns of the assets comprising the portfolio. The weights are the proportions of funds allocated to each asset. For a two asset portfolio:

$$r_P = w_1 \times r_1 + w_2 \times r_2$$

Where:  $w_1, w_2$  = proportion of funds invested in asset 1 and asset 2.

$r_1, r_2$  = returns on asset 1 and asset 2

## Calculating Risk

The risk of a portfolio, as measured by the standard deviation is computed as shown in below for a two-asset portfolio.

$$\sigma_P = \sqrt{w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1 w_2 \rho \sigma_1 \sigma_2}$$

Where:  $\sigma_1$  and  $\sigma_2$  = standard deviations of asset 1 and asset 2.

$\rho$  = correlation coefficient between returns of asset 1 and asset 2.

The correlation coefficient plays a critical role in risk reduction. The lower the value of  $\rho$ , the greater is the potential for risk reduction. In the hypothetical case where two assets are perfectly negatively correlated ( $\rho = -1$ ), it is possible to construct a portfolio with no risk. This is hypothetical because in practice most assets are correlated to each other to some degree.

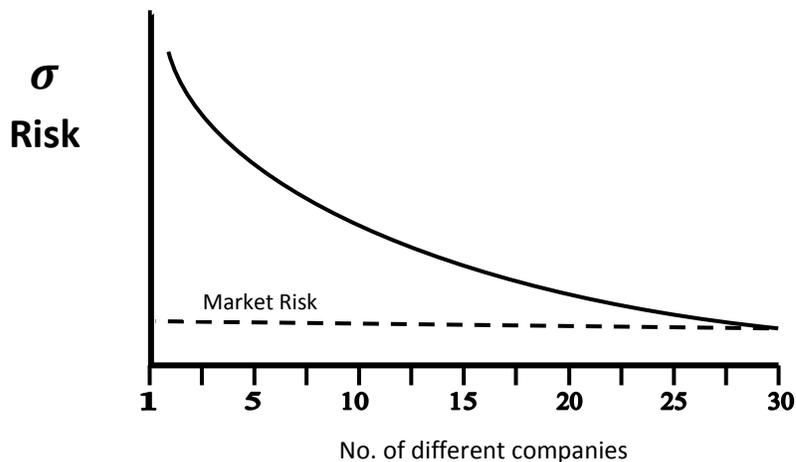
# 12.3 INTRODUCTION TO ASSET PRICING MODELS

## 12.3.1 SYSTEMATIC AND NON-SYSTEMATIC RISKS

**Learning Objective 12.3.1** - Understand the differences between unique (non-systematic) risk and market (systematic) risk

Observations show that as the number of securities in a portfolio increases, the risk of the portfolio decreases, but only up to a point. This underlines the hypothesis that all securities are exposed to certain common risk factors plus a unique security specific risk, and that the security specific risk can be eliminated when combined with other securities.

The following diagram illustrates this graphically:



In practice it is found that by the time a portfolio includes approximately 30 stocks most of the benefits of diversification have been achieved. The risk that can be diversified away is called the unique risk, the specific risk or the non-systematic risk. That risk that cannot be diversified away is called market risk or systematic risk.

Stock prices fluctuate as a result of changes in market wide factors such as inflation, economic growth and exchange rates. Stock prices also fluctuate as a result of events specific to the firm, such as a research and development breakthrough, or a strike by its employees. Portfolio theory tells us that firm specific risk can be reduced or eliminated through the simple process of diversification. If this risk can be eliminated, financial markets are unlikely to provide a risk premium for this type of risk. Market or systematic risk, however, affects all securities and cannot be eliminated. Market risk will be rewarded - the higher the systematic risk of an investment, the higher the return.

## 12.3.2 THE CAPITAL ASSET PRICING MODEL

**Learning Objective 12.3.2** – *Understand* the Capital Asset Pricing Model and the use of Beta in identifying risk premium

The Capital Asset Pricing Model (CAPM) quantifies the expected return on a security, based on an equation and assuming investors will only be rewarded for systematic risks, and not non-systematic or unique risk. The systematic risk of a security is measured by its beta (denoted by the Greek letter  $\beta$ ) and can be loosely defined as the degree of dependence of the security's return to the overall market.

Given the beta of a security or an investment, the CAPM equation shows that the risk premium of the security is proportional to the risk premium of the overall stock market. The CAPM equation is as follows:

$$R_i = R_f + [\beta_i(R_m - R_f)]$$

Where  $R_i$  the return on the security,  $R_f$  is the return on a risk free asset,  $R_m$  is the return of the overall market, and  $\beta_i$  the beta of the security.

The beta of a security is normally estimated using statistical techniques. It can be interpreted as the sensitivity of the security's return to changes in the overall stock market. Thus, a risk free investment has a beta value of 0, and a security which is as risky as the overall stock market has a beta of 1. A stock with a beta of 2 will therefore experience a 2% change in its return, for every 1% change in the overall market return.

### 12.3.3 THE REQUIRED RATE OF RETURN USING (CAPM)

**Learning Objective 12.3.3** – *Be able to calculate* the required rate of return on a stock using the Capital Asset Pricing Model

The CAPM equation detailed above can be used to estimate the required rate of return. The three inputs required are the risk free rate, the expected return of the market, and the beta of the security.

#### **Example 12.2**

A stock has an estimated beta of 1.75. The return on government T-bills is currently 5% (this will serve as our risk free rate). Investors expect the overall market return to be 12%. The required rate of return on the stock is:

$$= 5\% + [1.75 (12\% - 5\%)] = 17.25\%$$

## Review Questions: Foundation of Investment Decision Making

- 1 - **Which of the following is *false*?**
  - (a) The expected return of a portfolio is always the weighted average of the expected return of each asset in the portfolio.
  - (b) Covariance measures the co-movement between the returns of individual securities.
  - (c) The standard deviation of a portfolio is always the weighted average of the standard deviations of individual assets in the portfolio.
  - (d) Standard deviation is easier to interpret than variance as a measure of risk.
  
- 2 - **The correlation coefficient**
  - (a) Equals covariance times the individual standard deviations
  - (b) Measures how security returns move in relation to one another.
  - (c) May be greater than +1.
  - (d) Shows a stronger relationship between the returns of two securities when its absolute value is closer to 0.
  
- 3 - **Which of the following correlation coefficients will provide the greatest diversification benefits for a given portfolio?**
  - (a) 0
  - (b) 0.5
  - (c) 1
  - (d) -0.9
  
- 4 - **Which of the following is *false*?**
  - (a) The more securities added to the portfolio, the lower will be its unsystematic risk
  - (b) It is always impossible to eliminate all the risk for a two-security portfolio.
  - (c) The more negative the correlation between securities in the portfolio, the more are the benefits of diversification
  - (d) The more securities added, the lower the marginal risk reduction per security added.
  
- 5 - **Stock A has a beta of 1.5 and Stock B has a beta of 0.5. Which of the following statements must be true about these securities? (Assume the market is in equilibrium.)**
  - (a) Stock B would be a more desirable addition to a portfolio than Stock A.
  - (b) Stock A would be a more desirable addition to a portfolio than Stock B.
  - (c) The expected return on Stock A will be greater than that on Stock B.
  - (d) The expected return on Stock B will be greater than that on Stock A.
  
- 6 - **Calculate the required rate of return for a Saudi listed company, assuming that the nominal risk-free rate is equal to 8 percent and the stock market risk premium (which is the difference between market return and the risk-free rate) is 6 percent. The Company has a beta of 1.5, and its realized rate of return has averaged 12 percent over**

**the last 3 years, while it was 15% for the last year**

- (a) 15%
- (b) 14%
- (c) 17%
- (d) 12%

**7 - Which is the best measure of risk for an asset held in isolation?**

- (a) Covariance.
- (b) Standard deviation.
- (c) Beta.
- (d) Range

**8 - Which is the best measure of risk for an asset held in a diversified portfolio?**

- (a) Correlation coefficient.
- (b) Coefficient of determination
- (c) Beta.
- (d) Coefficient of variation;

**9 - The beta for the Desert Corporation (an American company) is 1.25. If the yield on 10 year T-bonds is 5.65%, and the long term average return on the S&P 500 is 11%.**

**Calculate the required rate of return for Desert Corporation**

- (a) 12.34%
- (b) 7.06%
- (c) 13.74%
- (d) 5.65%

**10 - Risk that can be eliminated through diversification is called \_\_\_\_\_ risk.**

- (a) Idiosyncratic
- (b) Firm-specific
- (c) Diversifiable
- (d) All of the above

**11 - Diversification is most effective when security returns are \_\_\_\_\_.**

- (a) High
- (b) Negatively correlated
- (c) Positively correlated
- (d) Uncorrelated

**12 - Which of the following factors influence an investor's required rate of return?**

- (a) The economy's real risk-free rate (RFR)
- (b) The expected rate of inflation (I)
- (c) A risk premium
- (d) All of the above

# 13 Mutual Funds,ETFs and Hedge Funds

## 13.1 The basics of mutual funds

- 13.1.1 General characteristics of mutual funds
- 13.1.2 Advantages of mutual funds investing
- 13.1.3 Fees
- 13.1.4 Net asset value (NAV)
- 13.1.5 Open ended versus closed ended funds
- 13.1.6 Types of funds by investment category
- 13.1.7 Types of funds by objectives

## 13.2 Performance measures for mutual funds

## 13.3 Exchange traded funds (ETFs)

- 13.3.1 The basics of exchange traded funds
- 13.3.2 Exchange traded funds vs. Mutual funds

## 13.4 Hedge funds

### Review questions

#### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# 13.1 THE BASICS OF MUTUAL FUNDS

## 13.1.1 GENERAL CHARACTERISTICS OF MUTUAL FUNDS

**Learning Objective 13.1.1** – *Know* the general characteristics of mutual funds

The advent of mutual funds has expanded the ability of individuals to participate in financial markets. A mutual fund is a mechanism by which a firm collects money from a large number of individual investors to form a pool, which can then be invested in various financial instruments. Fund sponsors pursue specific objectives to satisfy the needs of the individual investors by offering funds with different risk characteristics and exposure to different kinds of securities. In the US alone, well over 2,500 mutual funds exist allowing individual investors to choose specific funds to suit their investment needs. Mutual funds are becoming increasingly popular in Saudi Arabia with authorized persons (APs) offering wide range of different funds.

## 13.1.2 ADVANTAGES OF MUTUAL FUND INVESTING

**Learning Objective 8.1.2** – *Know* the advantages of mutual funds to the investor

Mutual funds present a number of advantages to the individual investor:

- Professional fund management.
- Diversification through pooling, although individuals might be investing small amounts.
- Lower transaction costs, since the fund managers trade large quantities of securities.
- The ability to choose funds that have a focus that matches the objectives of the investor.

By far the greatest advantage for the small investor is diversification and professional management, which is difficult to achieve with the limited funds available to the typical investor.

## 13.1.3 FEES

**Learning Objective 13.1.3** – *Know* the various fees and other charges levied on mutual funds

Mutual funds levy a variety of fees that can lower the rate of return to the investor. Load funds apply an initial fee as a sales charge and sometimes an exit fee when funds are withdrawn. Unless there is good reason to believe that the fund manager can exhibit superior investment performance, the investor will probably be better off choosing no load funds. Most funds charge operating expenses to cover costs of operating the fund such as administrative expenses, and salaries. Other charges are commonly made to cover advertising expenditure, commissions paid to brokers, and the costs of printing and distributing annual reports. It is in the interest of potential investors to research the mutual funds carefully to understand these costs and the implication of these costs on the overall return.

### 13.1.4 NET ASSET VALUE (NAV)

**Learning Objective 13.1.4** – *Understand* what is meant by the Net Asset Value (NAV) of a fund and be able to calculate NAV

Investing in mutual funds is done by purchasing shares issued by the fund. The fund in turn uses the money to invest in securities in keeping with its stated objectives. The Net Asset Value (NAV) represents the total market value of the securities held by the fund divided by the number of units outstanding. The financial press such as the Wall Street journal carries daily price information for a large number of mutual funds. In addition a number of publications, such as 'Money Magazine' and 'Forbes' present detailed analysis of the performance of individual funds annually. In Saudi Arabia, At least weekly prices and trading information are presented In Tadawul website. NAV is computed as follows:

$$\text{NAV} = \frac{\text{MVA} - \text{LIAB}}{\text{Number of Units}}$$

Where MVA stands for the market value of the securities held by the mutual fund. From this we subtract any liabilities such as wages payable, before dividing by the number of shares issued by the fund.

A mutual fund having 5 million shares outstanding and holding securities with a market value of SR 342 million with liabilities of SR 12 million for investment fees, and SR 6 million for office rent and other expenses will have an NAV of SR 64.80.

$$\text{NAV} = \frac{342 - 12 - 6}{5} = \text{SR}64.80$$

### 13.1.5 OPEN ENDED VERSUS CLOSED ENDED FUNDS

**Learning Objective 13.1.5** – *Understand* the differences between Open Ended Funds and Closed Ended Funds

An open ended fund as the name implies, stands ready to sell new units or redeem existing shares at any time at the stated NAV per unit.

Closed ended funds on the other hand are closed after the subscription period during which they sell their units. An existing investor wishing to redeem his unit will have to find a buyer for his units. Closed ended fund units trade on stock exchanges very much like the shares of individual companies. One curious phenomenon of closed ended funds is that the market price of the unit need not equal the net asset value (most of the time) of the fund unit. It is not uncommon to see closed ended fund units either trading at a discount or at a premium to their NAV.

## 13.1.6 TYPES OF FUNDS BY INVESTMENT CATEGORY

**Learning Objective 13.1.6** – *Know* the various different categories of mutual fund:

- Money market
- Bond
- Stock
- Balanced
- Country
- Index

Mutual funds can be classified into various ways. The following six categories of funds are based on the type of investments held

### (1) Money Market Funds

Money market funds invest primarily in short-term securities such as government T-Bills, CDs, and Commercial paper. These funds tend to be relatively safe; however the relative safety means that they offer only a modest rate of return. These funds can provide services similar to a bank account by allowing investors to write checks against the money invested in the money market fund.

### (2) Bond Funds

These funds invest in fixed income securities such as government bonds and corporate bonds. Bond funds tend to provide a steady income with reasonable safety, although the bonds will tend to suffer falls in value if interest rates rise. Bond funds may choose to specialize in particular segments of the fixed income market in terms of maturity and quality of issuer (such as an investment grade bond fund contrasting with a fund investing purely in junk bonds).

### (3) Stock Funds

These funds invest primarily in equities. Funds differentiate themselves by varying their style and the emphasis they place on specific sectors of the economy. For example, an investor interested in the telecommunications industry could find a fund that invests only in telecommunications company stocks.

### (4) Balanced Funds

A fund invested in stocks, bonds and with some part of its portfolio invested in short-term instruments would be termed a balanced fund. Such funds might provide a reasonable level of income without significantly jeopardizing the amount of money invested in the fund

### (5) Country Funds

Diversifying investments globally has now become relatively easy with the introduction of geographically based funds such as country specific funds. Choices range from funds investing in a single country (e.g., Japan fund, Mexico fund) to funds that invest in a group of countries (eg, emerging markets funds).

## (6) Index Funds

Index funds passively mimic a broad market index. The Vanguard 500 fund invests funds in the 500 stocks included in the S&P 500. Investors interested in diversification at minimal cost find such index-tracking funds ideally suited to their needs.

### 13.1.7 TYPES OF FUNDS BY OBJECTIVES

**Learning Objective 13.1.7** – *Know* the three main types of objectives adopted by mutual funds:

- Aggressive growth fund
- Growth and income fund
- Income fund

Rather than classifying funds according to what investments they make, mutual funds can be classified according to their aims or objectives. The following three objective based classifications are common:

#### (1) Aggressive Growth Fund

A fund with such an objective would invest in stocks and companies in emerging, fast growing sectors of the economy. Inevitably these funds entail a relatively high degree of risk.

#### (2) Income Fund

These funds attempt to generate a high level of current income while maintaining the safety of principal sum invested. Such funds will include a large proportion of fixed income investments such as bonds.

#### (3) Growth and Income Fund

This style calls for investing in a mix of securities, some for their growth potential and others for their income generation. The idea is to ensure a reasonable level of income and moderate potential for growth in value without unduly compromising the principal sum invested in the fund.

## 13.2 PERFORMANCE MEASURES FOR MUTUAL FUNDS

**Learning objective 13.2** – Understand and calculate the different measures of performance of mutual funds:

- Standard deviation
- Beta
- Sharpe index
- Alpha
- Treynor Index

Risk and investing go hand in hand. To know a fund performance, apart from comparing the performance vis-a-vis the benchmarks, an investor should also make use of certain statistical measures that make evaluation of a mutual fund even more precise. Among the most commonly used measures, are standard deviation, Beta, Sharpe, Alpha and Treynor.

### Standard deviation

Standard deviation is a statistical measure of the range of a fund's performance, and is reported as an annual number. When a fund has a high standard deviation, its range of performance has been very wide, indicating that there is a greater potential for volatility. (Standard deviation has been discussed in previous chapters)

### Beta

Another way to assess the funds up and down movements is its beta measure. Beta measures the volatility of a fund relative to a particular market benchmark i.e. how sensitive the fund is to market movements.

A beta greater than 1 means that the fund is more volatile than the benchmark while a beta less than 1 means that the fund is less volatile than the benchmark. For example, a Beta of 1.1 would indicate that if the market goes up 10%, the fund might rise 11% and vice versa in a down market.

### Sharpe Index

The most common measure that combines both risk and reward into a single indicator is the Sharpe ratio or index. A Sharpe ratio is computed by dividing a fund's return in excess of a risk-free return (usually a 90-day Treasury bill) by its standard deviation. This measures the amount of return over and above a risk-free rate against the amount of risk taken to achieve the return. So if a fund produced a 20% return while the Treasury bill return is 5% and its standard deviation is 10%, its Sharpe ratio would be:

$$(20 - 5) / 10 = 1.5.$$

Generally, there is no right or wrong Sharpe ratio. The measure is best used to compare one fund's ratio with another, or to its peer group average. For similar funds, the higher the Sharpe ratio, the better is the fund's historical risk-adjusted performance.

$$\text{Sharpe ratio} = (\text{Fund Average Return} - \text{Risk Free Return}) / \text{Standard Deviation of the Fund}$$

## Alpha

The Alpha measure is less about risk than it is about “value added.” Alpha represents the difference between the performance you would expect from a fund, given its beta, and the actual returns it generates. A high alpha means that the fund has performed well. A negative alpha means the fund under performed.

Mathematically,  $\text{Alpha} = \text{fund return} - [\text{Risk free rate} + \text{Beta of fund} (\text{Benchmark return} - \text{Risk free return})]$

## Treynor Index

The Treynor ratio or index is similar to the Sharpe ratio. Instead of dividing the fund’s excess return by the standard deviation, it divides by the fund Beta. A fund with a high ratio has high return relative to market related risk

# 13.3 EXCHANGE TRADED FUNDS (ETFs)

## 13.3.1 THE BASICS OF EXCHANGE TRADED FUNDS

**Learning objective 13.3.1** – Know the Basics of Exchange Traded Funds

Exchange Traded Funds (ETFs) are a special type of mutual funds. ETFs hold a basket of individual stocks, just as mutual funds do. However, ETFs are more flexible than mutual funds; since ETFs are bought and sold on a stock exchange. This trading on exchanges allows their shares to be traded throughout the day like stocks. However, ETFs are passively managed, which means that a predetermined set of rules is used to select the individual stocks that are held in each ETF.

Unlike mutual funds, which need to create new shares to meet investor purchases and to eliminate existing shares to meet redemptions, investors conduct transactions with other investors (buyers and sellers) to exchange ETF shares for cash, but the number of outstanding ETF shares does not change as a result of the transactions, only the shareholders change.

ETFs expenses are generally lower than most mutual funds; because of the passive nature of indexing strategies, and their liquidity depend on the liquidity of the stocks included in the index.

In Saudi Arabia, the CMA board approved the mechanism of ETFs in early 2010, allowing their units to be issued and traded on the Saudi Stock Exchange (Tadawul). Saudi citizens and foreigners (Residents and non – residents) are permitted to own and trade ETFs. By the end of 2010 two ETFs were listed and trading on Tadawul namely “Falcom Saudi Equity ETF” and “Falcom petrochemical ETF”. The value of assets in the two ETFs stood at SR 74.2 million.

## 13.3.2 EXCHANGE TRADED FUNDS VS. MUTUAL FUNDS

**Learning objective 13.3.2** – Understand the differences between exchange traded funds and mutual funds

The table below compares and summarizes the mutual funds characteristics versus ETFs:

|                          | <b>Mutual Funds</b>                                    | <b>ETFs</b>   |
|--------------------------|--|---|
| <b>Universe</b>          | Wide choice of security                                | Limited to stock indexes  |
| <b>Valuation</b>         | Net asset Value (NAV)                                  | Creation of units and redemption at NAV. Market prices are used in secondary market |
| <b>Pricing</b>           | End – of – day (or periodically in some instances)     | Continuous throughout the trading hours   |
| <b>Expenses</b>          | Varied, but usually lower for index funds              | Lower even than index funds   |
| <b>Transaction Costs</b> | None (for no load funds, sales charges for load funds) | Commissions or brokerage  |

## 13.4 HEDGE FUNDS

**Learning objective 13.4** – *Understand* what is meant by Hedge Funds

As a class of asset, hedge funds are not old investment. The early 1990s witnessed the large establishment of hedge funds in the U.S and around the world. By 2009 the assets under management of hedge funds exceeds \$1.9 trillion (\$1.5 trillion in the U.S) dollars and their number is estimated to be over 13000 (almost 10,000 in the US alone).

A hedge fund is a private investment fund that invests in a range of assets and a variety of investment strategies intended to protect the funds invested from losses in downward market while attempting to maximize returns in upward markets.

As a class, hedge funds undertake a wider range of investments and trading activities than traditional long only investments funds. Their investments span a wider range of assets, including equities, bonds and commodities.

The prominent objective of hedge funds is to secure a positive return on the underlying investments regardless of overall market performance. However, hedge funds are mostly open to sophisticated investors (mostly high net worth investors) and they usually not sold to the public or individual investors. In order to secure positive returns, the hedge fund may use leverage; short – selling, asset – backed lending, arbitrage and other trading strategies and techniques.

Investors in hedge funds are generally required to be sophisticated qualified investors and knowledgeable about investment risks. To reduce investment risks, most hedge funds use various risk management strategies in order to hedge the inherent investment risks.

## Review Questions: Mutual Funds, ETFs and Hedge Funds

- 1 - Which one of the following statements regarding open-end mutual funds is false?**
  - (a) The funds redeem shares at net asset value.
  - (b) The funds offer investors professional management.
  - (c) The funds offer investors a guaranteed rate of return.
  - (d) B and C.
  
- 2 - Which one of the following statements regarding closed-end mutual funds is false?**
  - (a) The funds always trade at a discount from NAV.
  - (b) The funds redeem shares at their net asset value.
  - (c) The funds offer investors professional management.
  - (d) A and B.
  
- 3 - Aljazeera Mutual Fund had year-end assets of SR 625 million and liabilities of SR 75 million. There were 200 million shares in the fund at year-end. What was the closest Net Asset Value?**
  - (a) SR 5.67
  - (b) SR .50
  - (c) SR 3.2
  - (d) SR 2.75
  
- 4 - Alsagr mutual fund had year-end assets of SR 388 million and liabilities of SR 144 million. If its NAV was SR 1.94, how many shares must have been held in the fund?**
  - (a) 200 million shares
  - (b) 274,226,804 shares
  - (c) 125,773,196 shares
  - (d) 74,226,804 shares
  
- 5 - Most mutual funds, when compared to a market index such as the TADAWUL All Shares Index (TASI):**
  - (a) Beat the market return in all years.
  - (b) Beat the market return in most years.
  - (c) Exceed the return on index funds.
  - (d) Do not outperform the market
  
- 6 - Investors in closed-end funds who wish to liquidate their positions must**
  - (a) Sell their shares through a broker.
  - (b) Sell their shares to the issuer at a discount to Net Asset Value.
  - (c) Sell their shares to the issuer at a premium to Net Asset Value.
  - (d) Sell their shares to the issuer for Net Asset Value.

- 7. At issue, offering prices of open-end funds will often be :**
- a. Less than NAV due to loads and commissions.
  - b. Greater than NAV due to loads and commissions.
  - c. Less than NAV due to limited demand.
  - d. Greater than NAV due to excess demand.
- 8. Which of the following statements about Money Market Mutual Funds is true?**
- a. They invest in commercial paper, CDs, and repurchase agreements.
  - b. They usually offer check-writing privileges.
  - c. They are highly leveraged and risky.
  - d. Both A and B are true.
- 9. Management fees and other expenses of mutual funds may include**
- a. Front-end loads.
  - b. Back-end loads.
  - c. Advertising expense
  - d. All of the above

- 10. Which of the following statements is true?**
- a. Exchange traded funds are more flexible than open- and close-end mutual funds
  - b. Exchange traded funds are more flexible than open- end funds but less flexible than close-end mutual funds
  - c. Exchange traded funds are more flexible than open- and close-end mutual funds
  - d. Exchange traded funds are less flexible than open- end funds but more flexible than close-end mutual funds
- 11. Hedge funds are:**
- a. Public investment funds with extremely high net asset value.
  - b. Public investment funds with restricted entry.
  - c. Private investment funds with wider range of investments.
  - d. Private investment funds with narrow range of investments.
- 12. Which of the following is not an advantage of mutual funds?**
- a. They offer a variety of investment styles.
  - b. They offer small investors the benefits of diversification.
  - c. They treat income as "passed through" to the investor for tax purposes.
  - d. A, B and C are all advantages of mutual funds.
- 13. Which of the following would increase the net asset value of a mutual fund share, assuming all other things remain unchanged?**
- a. An increase in the number of fund shares outstanding
  - b. An increase in the fund's accounts payable
  - c. A change in the fund's management
  - d. An increase in the value of one of the fund's stocks

# 14 Shariah-Compliant Investment Tools

## Introduction

### 14.1 Musharaka or partnership contracts

- 14.1.1 Basic terms
- 14.1.2 Rights and responsibilities of the bank
- 14.1.3 Rights and responsibilities of the client

### 14.2 Mudaraba contracts

- 14.2.1 Basic terms
- 14.2.2 Rights and responsibilities of the bank
- 14.2.3 Rights and responsibilities of the client
- 14.2.4 Categories of Mudaraba contracts

### 14.3 Murabaha agreements

- 14.3.1 Basic terms
- 14.3.2 The rights and responsibilities of the bank
- 14.3.3 The rights and responsibilities of the client

### 14.4 Other specific contracts

- 14.4.1 Salam sale transactions
- 14.4.2 Cash and credit sale
- 14.4.3 Istisna contracts
- 14.4.4 Leasing productive assets

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

This chapter will acquaint candidates with Shariah-compliant investment tools. Shariah-compliant investment tools are securities and contracts provided by Islamic banks and include, Musharaka or partnership, Mudaraba, Murabaha, Salam sale, Credit sale, and Istisna contracts.

## 14.1 MUSHARAKAH OR PARTNERSHIP CONTRACTS

### 14.1.1 BASIC TERMS

**Learning Objective 14.1.1** – *Know* the basic terms of a Musharaka contract

Musharaka is a partnership contract where each party contributes towards an investment project, with profits and losses shared in proportion to their contributions. The investment opportunity could be any business venture, such as the setting up a production facility or simply the purchase and sale of a commodity. Generally the two parties are a bank and a client of the bank.

### 14.1.2 RIGHTS AND RESPONSIBILITIES OF THE BANK

**Learning Objective 14.1.2** – *Understand* the rights and responsibilities of the bank under a Musharaka contract

Generally it is the banks that provides most of the funding for the Musharaka contract. The bank will then have the right to monitor or supervise the project to determine whether their funds are being utilized properly.

Musharaka contracts can either be of the fixed or diminishing type. In the fixed Musharaka contract, the contributed shares of the bank and the client participating in the project remain constant over the life of the partnership. In the diminishing Musharaka contract, the bank gives the client the right to withdraw its share gradually over time. Both the client and the bank may choose to sell their share of the Musharaka to a third party.

### 14.1.3 RIGHTS AND RESPONSIBILITIES OF THE CLIENT

**Learning Objective 14.1.3** – *Understand* the rights and responsibilities of the client under a Musharaka contract

In a Musharaka contract, one of the partners takes the responsibility for the management of the project, and this partner then receives a percentage of net profits as compensation for this effort. In most cases the bank client will tend to be the managing partner in Musharaka contracts with the bank.

In spite of their usefulness as an investment tool and Islamic relevance, the use of Musharaka contracts has declined over time. The main reason appears to be fraudulent practices in the execution of the contracts by unscrupulous clients, placing the participating bank's capital at risk.

## 14.2 MUDARABA CONTRACTS

### 14.2.1 BASIC TERMS

**Learning Objective 14.2.1** – *Know* the basic terms of a Mudaraba contract

A Mudaraba contract, also known as Qirad, is a special type of partnership where one party contributes funds for the venture while the other party provides the managerial effort in implementing and operating the project. The first party is the owner of capital -"Rab Almal"- bearing the financial risk, and agreeing to accept any losses on the project. The second party is the working partner- "Mudarib"-, sharing in the profit of the venture based on a predetermined ratio, but not responsible for potential losses unless it is a result of misuse, deliberate negligence or violations of the terms of the contract. Examples of Mudaraba are the provision of capital for medical clinics, or pharmacies, with a bank acting as the Rab Almal.

### 14.2.2 RIGHTS AND RESPONSIBILITIES OF THE BANK

**Learning Objective 14.2.2** – *Understand* the rights and responsibilities of the bank under a Mudaraba contract

The bank is generally the provider of the capital in a Mudaraba contract, acting as the Rab Almal. Legal opinion is that, since Mudaraba capital is considered to be provided on "trust" to the working partner, the owner of capital is not permitted to ask for guarantees in the form of collateral from the Mudarib. Indeed, if the bank providing the capital demanded collateral from the working partner, the Mudaraba would be void. The bank is not allowed to demand a fixed sum of money as a return on the project, with profits only able to be allocated according to a predetermined percentage, not absolute amounts.

### 14.2.3 RIGHTS AND RESPONSIBILITIES OF THE CLIENT

**Learning Objective 14.2.3** – *Understand* the rights and responsibilities of the client under a Mudaraba contract

For the Mudaraba contract to be legitimate it must satisfy certain conditions with respect to profit sharing terms. As with the bank, the client cannot demand a fixed sum of money as a return on the project. If either party is entitled to a set amount of profit, the Mudaraba contract becomes null and void. Profits have to be shared according to a predetermined and declared percentage and not as absolute amounts. The Mudaraba will also be void if the working partner is asked to share in the financial losses of the venture. However, the working partner can be held responsible for financial losses resulting from deliberate negligence or disregard to the terms of the contract.

## 14.2.4 CATEGORIES OF MUDARABA CONTRACTS

**Learning Objective 14.2.4** – *Understand the differences between a Special Mudaraba contract and a Multiple Mudaraba contract*

Mudaraba contracts can be divided into two categories:

### (1) Special Mudaraba

A special Mudaraba is where only two parties participate in the venture, with one contributing capital (usually the bank) and the other contributing managerial effort (the client of the bank). In some cases capital is provided by one party but the contract is jointly managed by both parties.

### (2) Multiple Mudaraba

A multiple Muraraba contract involves a number of capital owners and working partners with one party assuming the role of coordinator or facilitator.

An example is where a bank accepts investment deposits that will be invested in a Mudaraba contract. In these circumstances the bank assumes two roles. In its first role it acts as a working partner or Mudarib, by accepting funds from the owners of capital (the investment depositors) on which it hopes to make a return. These funds are subsequently invested in a project through a Mudaraba contract, and the bank now acts as the provider of capital or Rab Almal. In this multiple arrangement, the bank has a dual role of being the Mudarib in relation to the investment depositors, and the Rab Almal in relation to the working party in the Mudaraba contract.

Such multiple roles have the potential of creating conflict of interests. In its first role, acting as a Mudarib on behalf of its depositors, the bank has a fiscal responsibility towards its depositors and is tempted to oversee the projects in which it invests funds. But as a Rab Almal in the investment project, any attempts to interfere in the activities of the Mudarib could nullify the Mudaraba contract. Such conflicts, and problems arising from dishonest practices by some partners, have led to a decline in the volume of Mudaraba activity in recent years.

## 14.3 MURABAHA AGREEMENTS

### 14.3.1 BASIC TERMS

**Learning Objective 14.3.1** – *Know* the basic terms of a Murabaha agreement

A Murabaha agreement is an agreement between a seller and a buyer, where the seller will acquire the commodity and deliver it to the buyer for an agreed upon, marked up price. The seller thus acts as the provider of funds. Payment is normally made on an installment basis or as a lump sum amount at a later date.

For the Murabaha contract to be shariah compliant it must satisfy the following conditions:

- The seller is required to disclose the original price at which the commodity was acquired
- The seller is required to disclose any expenses that may have been incurred, in addition to the original price
- The profit margin must be clearly specified and be known to both parties to the contract

### 14.3.2 THE RIGHTS AND RESPONSIBILITIES OF THE BANK

**Learning Objective 14.3.2** – *Understand* the rights and responsibilities of the bank under a Murabaha agreement

In practice the seller in the Murabaha contract is a bank, while the buyer is a bank client who is in need of funds to purchase the underlying goods. It is legitimate for the bank to require the client to make an initial down-payment or to provide some guarantee. The bank, however, is not expected to take advantage of the client's situation by demanding unreasonably high mark-ups.

The right of the buyer to reject the commodity prior to delivery can make the contract particularly risky for the bank. The bank bears the risk of loss prior to delivery to the client and the risk of the transaction increases the longer the bank has to hold the commodity until delivery. To lessen this risk, in most cases the bank is in possession of the goods for a very short period of time, allowing the bank to play its traditional role as a provider of funds at a cost determined by market interest rates.

### 14.3.3 THE RIGHTS AND RESPONSIBILITIES OF THE CLIENT

**Learning Objective 9.3.3** – *Understand* the rights and responsibilities of the client under a Murabaha agreement

Murabaha contracts play an important role in the financing of foreign and domestic trade in commodities such as capital equipment, raw materials and consumable goods. The buyer in the Murabaha contract is the bank client, needing funds to purchase the underlying goods. The process is initiated by a client who places a purchase order for the required commodity with the bank at a mutually agreeable price, including a profit margin for the bank. The bank is required to purchase and assume physical possession of the commodity before reselling it to the client at the agreed upon price.

## 14.4 OTHER SPECIFIC CONTRACTS

### 14.4.1 SALAM SALE TRANSACTIONS

**Learning Objective 14.4.1** – *Understand* the characteristics of a Salam Sale transaction and the conditions that it must meet

A Salam Sale is a transaction where payment is made today for a commodity that will be delivered at a future date. In the Salam Sale the purchaser is effectively providing credit to the seller/producer. The producer (seller) receives the money today and the money can be used to finance the production or procurement of the commodity. A Salam Sale is the opposite of a regular credit sale, where the commodity is delivered today and payment deferred to a later date. Sayid Sabiq (a prominent Muslim jurist) has ruled that since credit sales are Shariah compliant, Salam sales must equivalently be considered Shariah-compliant.

The Salam sale transaction must satisfy the following conditions:

1. The commodity to be sold should be described with qualities that account for any price differences.
2. The underlying commodity should be specified precisely by weight, for weighable commodities, by measurement for measurable commodities, and by number for enumerable commodities.
3. The contract should specify a definite delivery date.
4. The commodity to be sold should be commonly available.
5. The price must be paid in whole at the initiation of the contract.

### 14.4.2 CASH AND CREDIT SALE

**Learning Objective 14.4.2** – *Understand* the characteristics of a Cash and Credit Sale

In a cash sale the commodity is delivered today and payment is made today. In a credit sale the commodity is delivered today and payment made later, either as a lump sum amount or in installments. Most modern and ancient jurists allow credit sale at a price higher than the cash sale price, as this practice is not explicitly prohibited in the Quran or Sunna. Sheikh Saloos states that credit sale and salam sale are permitted as these facilitate trade and commerce for Muslims.

Some authorities of Shariah law disallow the addition of a margin on credit sales as this may constitute Riba. However, most jurists allow the price difference, justifying the difference, as Professor Chapra has pointed out, as compensation for the additional costs incurred to service credit sale. These additional costs arise from having to maintain detailed customer accounts and in the collection of receivables.

### 14.4.3 ISTISNA CONTRACTS

**Learning Objective 14.4.3** – *Know* the basic details of an Istisna Contract

An Istisna is a contract written between the Islamic bank and another party, where the latter agrees to manufacture a commodity according to a specific description, for which the price is paid in accordance with the progress in production. An example is a contract between a bank and a building contractor, where both the amount and timing of payments to the contractor are clearly stated. The contract must specify the quality, size, raw materials to be used, time and location of delivery.

### 14.4.4 LEASING PRODUCTIVE ASSETS

**Learning Objective 14.4.4** – *Know* the basic details of financing leases and operating leases and the differences between them

A lease is a contract between a bank and a customer, where the bank buys an asset, such as equipment, and leases it to the customer for an agreed period. Ownership of the asset remains with the bank, while the customer uses the asset and pays a contractual amount of rent. At the end of the lease period, the bank repossesses the asset.

There are two types of lease: Capital (or financing) lease and operating lease. In a financing lease, the contract period is so long that it broadly equates to the useful life of the asset. The sum of the lease payments under these financing lease contracts may exceed the original cost of the asset, resulting in the bank making profits from the customer over the lease. In financing leases the customer may also be responsible for maintenance and repair of the leased asset. Operating leases are invariably shorter than financing leases, and commonly the customer can cancel them with little or no notice. In operating leases the bank is responsible for all expenses related to ownership such as maintenance and repair of the leased asset. Leasing in both forms is permitted under Shariah rules, although doubts arise for some forms of financing lease. Shariah compliance is particularly doubtful where the contract includes the obligation for the customer to buy the asset at the end of the contract period, or when the customer is required to make lease payments over the whole useful life of the asset, even when the customer no longer needs or uses the asset.

## Review Questions: Shariah – Compliance Investment Tools

### 1 - In Musharaka Contracts:

- (a) Profits and losses are shared on an equal predetermined basis.
- (b) Profits but not losses are shared on a relative basis.
- (c) Profits and losses are shared in proportion to capital contributed.
- (d) Profits are shared on the basis of contributed capital, but the bank bears the losses.

### 2 - In Musharaka financing, it is generally and usually

- (a) The bank which provides most of the funds.
- (b) The client who provides most of the funds.
- (c) The funds should be equally contributed.
- (d) The funds are contributed by a third party to the contract.

### 3 - Which of the following statements is correct:

- (a) In the Musharaka contracts, the bank but not the client can sell its share to a third party.
- (b) In the Musharaka contracts, the client but not the bank may choose to sell its share to a third party.
- (c) In the Musharaka contracts, both the bank and the client may choose to sell their respective shares to a third party.
- (d) In the Musharaka contract, neither the bank nor the client can sell their respective shares to a third party

### 4 - In the fixed Musharaka contract, the term “fixed” refers to:

- (a) A fixed contributed share of capital.
- (b) A fixed time horizon for the contract.
- (c) A fixed percentage profit / loss.
- (d) A fixed type of activity underling the contract.

### 5 - In Mudaraba contract:

- (a) One party contributes funds while the other party provides management.
- (b) Both parties to the contract provide equal share capital.
- (c) Parties to the contract provide unequal share capital
- (d) A third party provides the capital, while the first party provides guarantee, and the second party provides management.

**6 - Provider of capital in a Mudaraba contract, known as “Rab Almal”.**

- (a) Can ask for collateral / guarantee from the Mudaraba in certain cases.
- (b) Is not allowed to ask for collateral / guarantee from the Mudaraba in all cases.
- (c) Can ask for a fixed sum of money as a return on the project.
- (d) Can share profit with the Mudarib in absolute amounts.

**7 - In Mudaraba contracts:**

- (a) Profits and losses are allocated according to absolute amounts.
- (b) Profits only are allocated according to absolute amounts.
- (c) Profits and losses are both allocated according to predetermined percentages.
- (d) Profits only are allocated according to a predetermined percentages

**8 - In which of the following contracts, there is a potential conflict of interest:**

- (a) Fixed Musharaka contract
- (b) Diminishing Musharaka contract
- (c) Special Mudaraba contract.
- (d) Multiple Mudaraba contract

**9 - Which of the following is not a condition for Murabaha to be Shariah compliant:**

- (a) The seller is required to disclose the original price of the commodity.
- (b) The seller is required to disclose any expenses incurred
- (c) The buyer is required to pay the lump sum amount upon agreement.
- (d) The profit margin must be clearly specified

**10 - A Salam contract is:**

- (a) Similar to a regular credit contract since the commodity is delivered today and payment is made in the future.
- (b) Similar to a regular credit contract since both delivery and payment are made in the future
- (c) Contrary to a regular contract since the salam commodity is delivered in the future and payment is made today
- (d) Contrary to a regular credit contract since both salam delivery and payments are made today

**11 - When comparing operating lease to financing lease:**

- (a) The contract period is longer under operating lease than under financing lease.
- (b) The maintenance costs are the responsibility of the customer in financing lease, while they are the responsibility of the bank in operating lease.
- (c) Only financing lease is permitted under Sharia law, but not the operating lease.
- (d) Only operating lease is permitted under Sharia law, but not the operating lease

# 15 Mergers, Acquisitions, IPOs and Restructuring

## Introduction

### 15.1 Basics of mergers and acquisition

15.1.1 Definition of mergers and acquisitions

15.1.2 Types of mergers

15.1.3 Types and methods of acquisitions

### 15.2 Restructuring

### 15.3 Initial public offering (IPO)

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.



# INTRODUCTION

Mergers and acquisitions between companies take place to create value for shareholders that expected to exceed the sum of the value of the individual companies. This value adding results usually from what is come to be known as synergy. Synergy takes the form of revenue enhancement and cost savings. Out of merging, the companies' objective is to benefit from:

- i. Economies of scale resulting from the bigger size of the merged companies.
- ii. Improved market share by reaching new markets that help increase sales and earnings
- iii. Staff reduction in major functions such as accounting, marketing, sales and other management jobs including top management.
- iv. Acquired new technologies or processes owned by the target or any form of competitive advantage

## 15.1 BASICS OF MERGERS AND ACQUISITIONS

### 15.1.1 DEFINITIONS OF MERGERS AND ACQUISITIONS

**Learning Objective 15.1.1** – *Know* the Basic Concept of Mergers and Acquisition

The term Merger & Acquisition (M & A) refers to two distinct actions:

- i. An acquisition arises when one company takes over another and the company ceased to exist, while the buyer continued as usual
- ii. The merger arises when two firms agree to continue as a single new company, rather than separately owned and operated.

### 15.1.2 TYPES OF MERGERS

**Learning Objective 15.1.2** – *Understand* the Basic Types of Mergers

The main types of merger, based on the relationship between the two companies are:

- i. Horizontal merger: takes place when two merged companies are in the same or similar businesses.
- ii. Vertical merger: takes place when a company merged with its supplier (downstream) company or with its customer (upstream) company.
- iii. Conglomeration merger: takes place when two companies that have no common business area merge.

## 15.1.3 TYPES AND METHODS OF ACQUISITIONS

**Learning Objective 15.1.3** – *Understand* the Basic Types and Methods of Acquisitions

An acquisition is the purchase of all of other firms' assets for a controlling interest in its stock:

- i. Acquisition of assets: It requires a vote of the acquired company shareholders.
- ii. Acquisitions of stock: It does not require a formal vote of the acquired companies' shareholders. Also, it is the viable method if the board of directors and management are hostile to the offer.

When the offer made by the acquiring company is not accepted by management, a tender offer maybe made directly to the target company shareholders to obtain a controlling interest (i.e. hostile acquisition).

On the other hand a proxy contest is an attempt usually made by dissident shareholders to get some degree of control by planting members on the board of directors.

Management buy-out (MBO) is usually effected by management or group of employees, and usually through the use of debt to buy the company. The buyers usually use little equity and use the assets of the bought company as collateral for the loan or debt issued to finance the transaction – the new owners usually take the company, if it is public one, private. The process is generally known as a Leveraged Buy – Out (LBO).

## 15.2 RESTRUCTURING

**Learning Objective 15.2** – *Understand* the Various Types of Restructuring Methods

There are several restructuring methods in practice, but the three main ones are:

- i - Sell-off
- ii - Equity carve – out
- iii - Spin-off

A sell-off (also known as divestiture), is the outright sale of a company subsidiary. Normally, management resorts to sell-off when it feels that the subsidiary hampers or negatively impacts the overall operating or/and financial performance of the group or simply that the subsidiary does not fit well with the company's operations.

Equity carve-out involves the sale of a portion of the company through an equity offering of shares in the new unit to external parties or investors, through an initial public offering (IPO). Thus, a new public-listed company is created, with the parent company retention of controlling interest in the new subsidiary.

A spin-off is the creation of a new separate entity from another entity, through distribution of the subsidiary's shares to shareholders on a pro-rata basis (usually through a stock dividend). The subsidiary becomes a separate legal entity with a distinct management and board. Thus, the existing shareholders will have the same proportion of ownership in the new entity that they had in the parent.

## 15.3 INITIAL PUBLIC OFFERINGS (IPO)

**Learning Objective 15.3** – *Understand the Process of Initial Public Offering (IPO)*

A company can issue its securities as a public issue or private issue. The first public equity issue that is made by a company is referred to as an initial public offering (IPO) – it is sometimes called unseasoned new issue. As the name implies this type of issue takes place when a company decides to go public. There are many methods through which IPO can be effected, the two famous of which are:

- i. The firm commitment cash offer
- ii. The best efforts cash offer

In the firm commitments cash offer, the issuing company negotiates an agreement with an investment banker, to underwrite and distribute the new shares. In this agreement the underwriting bank commits itself to buy a specified number of shares (usually the whole issue) for sale to the public (at a higher price). Under this method the issuing company is certain about both the amount of shares to be issued and the net proceeds it receives.

In the best efforts cash offer, the company agrees with the investment banker(s) to sell as many of the new shares as possible at special price. Under this method the bank does not guarantee the quantity or the total amount of cash to be raised.

## Review Questions: Merger, Acquisitions, and Restructurings.

1. **The complete absorption of one company by another, wherein the acquiring firm retains its identity and the acquired firm ceases to exist as a separate entity, is called a:**
  - a. Acquisition
  - b. Consolidation
  - c. Tender offer
  - d. Spinoff
  
2. **A merger in which an entirely new firm is created and both the acquired and acquiring firms cease to exist is called a:**
  - a. Divestiture
  - b. Consolidation
  - c. Tender offer
  - d. Spinoff
  
3. **A public offer by one firm to directly buy the shares of another firm is called a:**
  - a. Merger
  - b. Consolidation
  - c. Tender offer
  - d. Spinoff
  
4. **The acquisition of a firm in the same industry as the bidder is called a \_\_\_\_\_ acquisition**
  - a. Conglomerate
  - b. Forward
  - c. Horizontal
  - d. Vertical
  
5. **The acquisition of a firm whose business is not related to that of the bidder is called a \_\_\_\_\_ acquisition**
  - a. Conglomerate
  - b. Forward
  - c. Horizontal
  - d. Vertical

- 6. An attempt to gain control of a firm by soliciting a sufficient number of stockholder votes to replace the current board of directors is called a:**
- a. Tender offer
  - b. Proxy contest
  - c. Going – private transaction
  - d. Leveraged buyout
- 7. A business deal in which all publicly owned stock in a firm is replaced with complete equity ownership by a private group is called a:**
- a. Tender offer
  - b. Proxy contest
  - c. Gong – private transaction
  - d. Leveraged buyout
- 8. Going – private transactions in which a large percentage of the money used to buy the outstanding stock is borrowed is called a:**
- a. Tender offer
  - b. Proxy contest
  - c. Leveraged buyout
  - d. Consolidation
- 9. The positive incremental net gain associated with the combination of two firms through a merger or acquisition is called:**
- a. The agency conflict
  - b. Goodwill
  - c. The consolidation effect
  - d. Synergy
- 10. The sale of stock in a wholly owned subsidiary via an initial public offering is referred to as a(n):**
- a. Split – up
  - b. Equity carve – out
  - c. Counter tender offer
  - d. White knight transaction
- 11. The distribution of shares in a subsidiary to existing parent company stockholders is called a(n):**
- a. Lockup transaction
  - b. Equity carve – out
  - c. Spin – off
  - d. Split – up

# 16 Fundamentals of market compliance

## Introduction

- 16.1 Definition of compliance
- 16.2 Important of compliance
- 16.3 Compliance and control functions
- 16.4 Developing the compliance culture
- 16.5 Costs and benefits of compliance
  - 16.5.1 The costs of compliance
  - 16.5.2 The benefits of compliance

## Review questions

### **Learning objectives**

The syllabus for this examination is broken down into a series of learning objectives and is included in the Syllabus Learning Map at the back of this workbook. Each time a learning objective is covered, it appears in a text box preceding the text.

# INTRODUCTION

Compliance with the law is a basic requirement of a well-functioning capital market. In the local market, the Capital Market Authority (CMA) is the regulating body that is responsible to implement and enforce the Capital Market Law and its implementing regulations to achieve an orderly market. Market compliance requires the market players, such as the stock exchange, brokers and dealers, investment advisors, asset managers, researchers and investors to conduct their business activities in accordance to the relevant law, rules and regulation.

Market intermediaries the Authorized Persons (APs) should conduct themselves in a way that protects the interests of their clients and helps to preserve the integrity of the markets. Compliance with securities laws, regulations and rules is part of the essential foundation of fair and orderly markets as well as investor protection. The compliance function is intrinsic to the operations of the APs because they must have systems or processes in place to ensure that they are complying with all applicable laws, codes of conduct and standards of good practice.

Compliance is not just the responsibilities of the Compliance Officer. Instead, compliance is the responsibility of the entire organization, from the CEO and top management, to middle management to officers and staff. Each organizational level and each individual needs to have a compliance mindset in conducting their activities. All individuals in the organization, regardless of their hierarchy and roles, are responsible to comply with the relevant laws, rules and regulations of the market and policies, procedures and standards of the company. Each individual has to play his/her part to support and comply with the system and not just relying on the Compliance Officer or the Compliance Department or the Compliance Committee.

## 16.1 DEFINITION OF COMPLIANCE

**Learning objective 16.1** – *Know* the meaning of compliance as it applies to financial market

To “comply” means “to act according to an order, set of rules or request”. In general, compliance means conforming to a rule, such as a specification, policy, standard or law. Compliance also means ensuring that the requirements of laws, regulation, industry codes and organizational standards are met. In the context of the Saudi securities market, compliance refers to carrying out activities in the securities business in accordance with the relevant laws, rules and regulation governing the market and not contravening these laws.

## 16.2 IMPORTANCE OF COMPLIANCE

**Learning objective 16.2** – *Understand the importance of compliance function within the authorized persons (APs)*

It is important for all Authorized Persons to be in full compliance for the benefits of the markets and investors. In general, when market players conduct their businesses according to rules and regulations, it creates harmony and confidence in the capital market. Investor feels safe and protected, and not being victimized or exploited. Specifically we may say that compliance will lead to the following:

1. Transparency in the market. Existence of adequate rules and regulations that cover various aspects of the securities business, and these rules and regulations are implemented and enforced in a strict and fairly manner to all the licensed Authorized Persons. Any breaches and violations are subject to legal actions provided by the law.
2. Transparency in the Authorized Persons organizations. There exist complete and clear processes, standards and procedures that cover all aspects of functions and operations of the APs. All managers, staff and employees understand these processes, standards and procedures and the consequences of not complying with them. This will create well-functioning intermediaries securities business.
3. Investor confidence. A high degree of market compliance among the market players will lead to investor confidence in the market. Investors will quickly lose confidence in the market if laws and regulations are not properly enforced. Lack of enforcement will open doors to manipulations and unfair practices of big market players at the expense of small investors. In this time of globalization and on-line trading, if investors lose confidence in the local market, they will turn to other competing markets.
4. Market stability. This is very much related to investor confidence as investor confidence will lead to market stability. When investors feel safe, confidence and protected, they can focus their efforts on investment activities; these include gathering information on the economy, market and securities, conducting research and constructing effective investment portfolios. These activities will help towards contributing to an orderly market that is conducive to market development that will lead to an efficient allocation of resources in the economy.
5. Avoid costly mistakes. We have seen many cases of con-compliance and mismanagement in the international market. These events led to tremendous loss and complete catastrophes, not only to the non-compliant organizations but also to the markets in general. (Interested readers may conduct their own internet search for cases such as the Barring Securities, Long-Term Capital Management, Ivan Boesky, etc.). Complying with laws, rules and regulations will avoid costly mistakes in the form of losses, legal expenses, fines and penalties and to individuals and institutions.

## 16.3 COMPLIANCE AND CONTROL FUNCTIONS

**Learning objective 16.3** – *Understand* the relationship of the compliance function to the internal control function

Compliance is closely related to internal control. A compliance program within the organization is the formal measures taken by the management to ensure that it meets the requirements of the laws and regulations, and acts as an insurance against breach of these rules. Internal control refers to a set of standards, policies and procedures that define the conduct of the organization, managers and employees. They define the boundaries within which conduct of business will take place. Going beyond the boundaries will constitute breach of conduct. These standards and policies are established in accordance with the relevant laws and regulations. Hence complying with the companies' standard operating procedures ensures compliance with the Authority's rules and regulation.

Authorized Persons are required to establish an internal function that delivers compliance with standards for internal organization and operational conduct, with the aim of protecting the interests of clients and their assets and ensuring proper management of risk. A compliance and control program should have the following objectives:

1. To prevent breach of the laws, rules and regulations, code of conduct, internal policies
2. To be able to quickly identify any deviations or breaches of the rules and regulations
3. To be able to implement an effective corrective action in cases of deviations and breaches
4. To promote a culture of compliance within the organization

To be effective in carrying out the function of compliance and control, APs have to be mindful of the constant and rapid changes in the environment that is influencing and affected the business securities. These include:

1. The use of information and communication technology
2. Liberalization and globalization of the market
3. On-line trading, electronic banking, cross-border trading and listing
4. Evolving needs of investors and increased sophistication of their trading

To establish an internal control system, the following steps may be taken:

1. Establish an appropriate organization structure. This sets out the hierarchical structure, division of functions and managerial levels within the organization. The organization structure should clearly indicate (1) which department is responsible for each business function, and (2) make clear the lines of authority and accountability, and responsibility and reporting.
2. Segregation of duties. This involves allocating tasks among employees in a manner that one employee's tasks act as a "check and balance" over another employee's tasks. In APs, the

usual examples of segregation would be between: procurement of client and credit analysis; trading activities and settlement; daily maintenance of general ledger balance and validation of general ledger balance; and maintenance of account and custody of collateral.

3. Authorization and approval: All transactions should require approval by an appropriately authorized official. Approval limits should be commensurate with the level of authority. All transactions need to be properly documented for compliance and audit review.
4. Accounting control. This is necessary for checking the accuracy of information contained in the accounting records and books of the company on daily basis. Checking must be made on the accuracy of entries, calculations, account balances, trial balances, etc.
5. Security and safe-keeping. This relates to the custody and safeguarding of physical assets, accounting records, data, and placing access restriction to business premises and security areas within the premises.

## 16.4 DEVELOPING THE COMPLIANCE CULTURE

**Learning objective 16.4.** – *Understand* the process of requirements and developing a compliance culture within the authorized person's organizations

A compliance culture refers to the environment in the Authorized Persons organizations where all managers and employees are aware of, understand and comply to the internal standards and procedures (developed and adopted by the organization) and the external rules and regulations (from the Authority). When this is present in the day-to-day conduct of the activities, it becomes a part of the work culture of the organization.

While many of the internal procedures need full commitment of the Compliance Officer for its implementation, the ultimate responsibility for establishing a compliance culture rests with the Board of Directors and the CEO. One of the good strategies to achieve this is through a mission statement that incorporates the ethics and compliance elements in it. The following may be used as guidelines to establish an effective compliance culture in an organization:

1. Incorporate ethics and compliance in the mission statement of the Authorized Person.
2. Have a well-documented operations manual incorporating practices that ensure compliance. The operations manual should include practical procedures and contain explanations on the reasons behind each requirement and the consequences if the requirement is violated. The manual should also contain explanations of individual's responsibilities for each function.
3. Have a proper system for record-keeping. This is essential to demonstrate and prove compliance.
4. Have an effective channel of communication to ensure all staff is fully aware of the policies and procedures affecting their duties and responsibilities.
5. New staff should be given training that emphasize ethical behavior and compliance of the policies and procedures

6. Include work ethics and compliance in performance evaluation of staff.
7. Have the Compliance Officer to advise on the regulated business areas on key matters on compliance.
8. Have a regular compliance reporting to the board
9. Have an effective internal control system.

## 16.5 COSTS AND BENEFITS OF COMPLIANCE

To achieve a fully compliant organization, an AP must incur costs. However, these costs will be far outweighed by the benefits as we discussed in the following sections. This discussion is giving an understanding that the AP must be ready with the necessary budget in order to cover the necessary expenses, directly or indirectly related to the compliance function, and that these costs are worth spending to prevent far bigger calamities.

### 16.5.1 THE COSTS OF COMPLIANCE

**Learning objective 16.5.1** – *Understand* the costs incurred by Authorized persons to create a compliant organization

1. Employing a specialized staff as a Compliance Officer for the AP means additional costs in terms of remuneration and facilities. For bigger organizations, a full Compliance Department need to be set up, complete with the required personnel and facilities. This would require a larger budget for the AP.
2. Staff development budget will also increase because the Compliance Officer and other employees in the Compliance Department need to be trained with specialized compliance-related courses.
3. Costs may also be incurred in the form of administrative expenses related to the compliance function, such as paperwork, generating reports, fees and fines, etc.
4. In addition there are hidden costs in relation to compliance functions. These include, human resources devoted to meetings, reviewing performance, reporting.

### 16.5.2 THE BENEFITS OF COMPLIANCE

**Learning objective 16.5.2** – *Understand* the benefits gained by the authorized persons from compliance

1. One of the major benefits of compliance is better risk management. Along with the existence of a compliance culture in the organization, risk management will also be in place. These include having appropriate standard operating procedures and systems, clear and non-overlapping roles of the functions and departments, clear demarcation of duties and responsibilities.
2. Another form of benefits is in the form of avoiding fines and litigation due to non-compliance or actions of employees or staff that are perceived to be non-compliance to the rules and regulations.

3. Companies or organizations that are competent and professional in their conduct would lead to a reduction or elimination in customer complaint, hence saving time and resources spent on attending and solving these complaints.
4. A good compliant system can also lead to early detection of any deviations from the required procedures. This would save the organization from larger problems and losses because corrective actions can be implemented at the early stage; if the problems are detected at later stages, larger costs would be incurred.
5. Additional benefits would be to improve and enhance the staff morale. The employees will feel proud being employed by an organization that is professionally managed and has a clean compliance record with the Authority.
6. If all APs and market players are fully compliant with the rules and regulations, and conduct themselves and their business ethically and professionally, this will undoubtedly lead to an improvement in the public confidence in the local securities market.
7. The greatest benefit of compliance will in the form of avoiding compliance failures. As shown by many real examples, the costs of non-compliance are huge. In many situations it will result in insolvencies and bankruptcies of the companies' concerned and undermining public confidence. In some cases there will be a snow-balling effect in the sense that one failure leads to other failures as demonstrated by the sub-prime crisis of 2008-2010. In the end the entire securities market is affected, and then spread to international markets.

# Review Questions: Fundamentals of Market Compliance

- 1 - Which of the following BEST describes the meaning of “compliance” in the context of securities market:**
- (a) To act according to the principles of securities trading or investment.
  - (b) To conform to all the laws of the country.
  - (c) To conduct securities business in accordance with the relevant market laws, rules and regulations.
  - (d) To comply with the stated policy, process and procedures of conducting securities business.
- 2 - Which of the following statements on the responsibilities of compliance is LEAST correct:**
- (a) Compliance is the responsibility of the entire organization, from the CEO and top management, to middle management to officers and staff.
  - (b) The responsibility for compliance increases from the lowest level to the highest level in the organization.
  - (c) Each organizational level and each individual needs to have a compliance mindset in conducting their activities.
  - (d) All individuals in the organization are responsible to comply with the relevant laws, rules, regulations, policies, and procedures in performing their respective duties.
- 3 - Which of the following is NOT considered as a benefit of compliance to the market?**
- (a) Leads to improved transparency
  - (b) Promotes investor confidence
  - (c) Promotes market price stability
  - (d) Avoids costly mistakes
- 4 - The following may be used as guidelines to establish an effective compliance culture in an organization, EXCEPT**
- (a) Incorporate ethics and compliance in the mission statement of the Authorized Person’s organization.
  - (b) Have a well-documented operations manual incorporating practices that ensure compliance.
  - (c) Have a proper system for record-keeping for all profit making and losing transactions.
  - (d) Include work ethics and compliance in performance evaluation of staff.

**5 - The following are some of the examples of benefits to be gained by having an effective compliance function in the organization?**

- i) Improved risk management
  - ii) Avoiding fines and penalties
  - iii) Reducing customer complaints
  - iv) Early detection of non-performing staff.
- (a) (i) and (ii) only
  - (b) (i), (ii) and (iii) only
  - (c) (i), (ii) and (iv) only
  - (d) All of the above

# End of Chapter Review Questions: Key Answers

## Chapter 1: Financial Markets: Organization and Management

- (1) a
- (2) d
- (3) d
- (4) d
- (5) c
- (6) d
- (7) d
- (8) a
- (9) d
- (10) b
- (11) a
- (12) c
- (13) c
- (14) c
- (15) c
- (16) c

## Chapter 2: Financial Markets Indicators

- (1) d
- (2) c
- (3) a
- (4) b
- (5) d
- (6) d
- (7) d
- (8) d
- (9) b

### **Chapter 3: Investment Instruments and Securities**

- (1) c
- (2) c
- (3) c
- (4) c
- (5) c
- (6) c
- (7) c
- (8) b

### **Chapter 4: Economic Framework**

- (1) d
- (2) d
- (3) a
- (4) a
- (5) c
- (6) d
- (7) b
- (8) c
- (9) b
- (10) d

### **Chapter 5: Financial Statement Basics**

- (1) a
- (2) d
- (3) b
- (4) b
- (5) c
- (6) c
- (7) c
- (8) b
- (9) c
- (10) c

### **Chapter 6: Financial Statement Analysis**

- (1) b
- (2) d
- (3) a
- (4) d
- (5) d
- (6) d
- (7) d
- (8) b
- (9) b

### **Chapter 7: Corporate Actions**

- (1) b
- (2) a
- (3) c
- (4) b
- (5) a
- (6) c
- (7) a
- (8) a
- (9) c
- (10) b

### **Chapter 8: Quantitative Foundation of Investment Analysis**

- (1) c
- (2) c
- (3) b
- (4) b
- (5) d
- (6) b
- (7) b
- (8) d
- (9) c
- (10) c
- (11) a

### **Chapter 9: Asset Valuation: Equity Investments**

- (1) c
- (2) c
- (3) c
- (4) a
- (5) d
- (6) b
- (7) b
- (8) c
- (9) a
- (10) b
- (11) b

### **Chapter 10 Asset Valuation: Debt Instruments**

- (1) d
- (2) d
- (3) c
- (4) c
- (5) c
- (6) d
- (7) c
- (8) d
- (9) b

### **Chapter 11: Derivatives**

- (1) b
- (2) c
- (3) c
- (4) c
- (5) c
- (6) c
- (7) b
- (8) b
- (9) d
- (10) a

## **Chapter 12: Foundations of Investment Decision Making**

- (1) c
- (2) b
- (3) d
- (4) b
- (5) c
- (6) c
- (7) b
- (8) c
- (9) a
- (10) d
- (11) b
- (12) d

## **Chapter 13: Mutual Funds, ETFs and Hedge Funds**

- (1) c
- (2) b
- (3) d
- (4) c
- (5) d
- (6) a
- (7) b
- (8) d
- (9) d
- (10) a
- (11) c
- (12) c
- (13) d

#### **Chapter 14: Shariah – Compliant Investment Tools**

- (1) c
- (2) a
- (3) c
- (4) a
- (5) a
- (6) b
- (7) D
- (8) d
- (9) c
- (10) c
- (11) b

#### **Chapter 15: Mergers, Acquisitions, IPOs and Restructuring**

- (1) a
- (2) b
- (3) c
- (4) c
- (5) a
- (6) b
- (7) c
- (8) c
- (9) d
- (10) b
- (11) c

#### **Chapter 16: Fundamentals of Market Compliance**

- (1) c
- (2) b
- (3) c
- (4) c
- (5) b

## SYLLABUS LEARNING MAP

| <b>ART 2 - OPERATIONS</b>  |  |                        |
|--|--|------------------------|
| <b>ELEMENT 1 FINANCIAL MARKET ORGANIZATION &amp; MANAGEMENT</b>            |  | <b>Chapter/section</b> |
| <b>1.1 Organization and Functioning of Securities Markets</b>              |  |                        |
| On completion, the candidate should:                                       |  |                        |
| 1.1.1  | <i>Understand</i> the role played and the objectives of the financial markets in the functioning of the economy  | Ch1, Section 1.1.1     |
| 1.1.2  | <i>Understand</i> the spot market and the significance of the futures market in the financial market – place   | Ch1, Section 1.1.2     |
| 1.1.3  | <i>Understand</i> the significance of the capital market as part of the spot market  | Ch1, Section 1.1.3     |
| <b>1.2 The Capital Market</b>  |  |                        |
| On completion, the candidate should:                                       |  |                        |
| 1.2  | <i>Understand</i> the significance of the capital market as part of the spot market  | Ch1, Section 1.2       |
|  | <ul style="list-style-type: none"> <li>• Primary market for new issues</li> <li>• Secondary market for trading securities</li> <li>• Functionality and advantages of the TADAWUL system</li> </ul> |                        |
| <b>1.3 Order Types</b>   |  |                        |
| On completion, the candidate should:                                       |  |                        |
| 1.3  | <i>Know</i> the types of orders available to the investor, their uses, advantages and disadvantages  | Ch1, Section 1.3       |
|  | <ul style="list-style-type: none"> <li>• Market order</li> <li>• Limit order</li> <li>• Fill or Kill order</li> <li>• Stop loss order</li> <li>• Stop – limit order</li> </ul>                     |                        |
| <b>1.4 Margin Purchase</b>   |  |                        |
| On completion, the candidate should:                                       |  |                        |
| 1.4  | <i>Understand</i> the characteristics of a margin purchase   | Ch1, Section 1.4       |
| 1.4.1  | <i>Understand</i> short selling  | Ch1, Section 1.4.1     |
| <b>1.5 The Saudi Arabian Stock Market</b>                                  |  |                        |
| On completion, the candidate should be:                                    |  |                        |
| 1.5  | <i>Understand</i> the characteristics of the Saudi Arabian market  | Ch1, Section 1.5       |
| <b>1.6 Organized (On Exchange) Trading Versus Over The Counter Trading</b> |  |                        |
| On completion, the candidate should be:                                    |  |                        |
| 1.6  | <i>Understand</i> the differences, advantages and disadvantages of trading:  | Ch1, Section 1.6       |
|  | <ul style="list-style-type: none"> <li>• (On Exchange), and</li> <li>• Over the counter</li> </ul>   |                        |
| <b>1.7 Market Styles</b>   |  |                        |
| On completion, the candidate should:                                       |  |                        |
| 1.7  | <i>Understand</i> the characteristics, advantages and disadvantages of:  | Ch1, Section 1.7       |
|  | <ul style="list-style-type: none"> <li>• Order driven markets</li> <li>• Quote driven markets</li> </ul>   |                        |

|  |   |                        |
|--|---|------------------------|
|  | <ul style="list-style-type: none"> <li>• Principal trading</li> <li>• Agency trading</li> </ul>   |                        |
|  | <b>1.8 Custody</b>  |                        |
|  | On completion, the candidate should:  |                        |
|  | 1.8 <i>Understand</i> the functions of, advantages and disadvantages of the following types of custodian:   | Ch1, Section 1.8       |
|  | <ul style="list-style-type: none"> <li>• Global</li> <li>• Local</li> <li>• Regional</li> <li>• Sub custodian</li> </ul>  |                        |
|  | <b>ELEMENT 2 FINANCIAL MARKETS INDICATOR</b>  | <b>Chapter/section</b> |
|  | <b>2.1 Security – Market Indicators Series</b>  |                        |
|  | On completion the candidate should:   |                        |
|  | 2.1.1 <i>Understand</i> the uses and characteristics of the following market indices:   | Ch2, Section 2.1.1     |
|  | <ul style="list-style-type: none"> <li>• FTSE 100</li> <li>• Dow Jones</li> <li>• NYSE Composite</li> <li>• NASDAQ</li> <li>• CAC</li> <li>• DAX40</li> <li>• Nikkei 225</li> <li>• S &amp; P 500</li> </ul>  |                        |
|  | Note: Candidates will not be required to calculate indices  |                        |
|  | 2.1.2 <i>Know</i> the methods of constructing stock indices   | Ch2, Section 2.1.2     |
|  | <ul style="list-style-type: none"> <li>• Price weighting</li> <li>• Value weighting</li> <li>• Equal weighting</li> </ul>   |                        |
|  | <b>2.2 Financial Markets Quality Indicators</b>   |                        |
|  | On completion the candidate should:   |                        |
|  | 2.2.1 <i>Understand</i> the desirable characteristics of capital markets:   | Ch2, Section 2.2.1     |
|  | <ul style="list-style-type: none"> <li>• Market efficiency</li> <li>• Market depth</li> <li>• Market width</li> </ul>   |                        |
|  | 2.2.2 <i>Understand</i> the following undesirable activities:   | Ch2, Section 2.2.2     |
|  | <ul style="list-style-type: none"> <li>• Wash sales</li> <li>• Cornering the market</li> <li>• Churning</li> </ul>  |                        |
|  | <b>ELEMENT 3 INVESTMENT INSTRUMENTS AND SECURITIES</b>  | <b>Chapter/section</b> |
|  | On completion the candidate should:   |                        |
|  | 3.1 <i>Understand</i> the characteristics of the following money market instruments:  | Ch3, Section 3.1       |
|  | <ul style="list-style-type: none"> <li>• Negotiable Certificates of Deposit</li> <li>• Treasury Bills</li> <li>• Commercial paper</li> <li>• Bankers' Acceptances</li> <li>• Repurchase Agreements</li> </ul> |                        |

|  |   |                        |
|--|---|------------------------|
| 3.2  | <i>Understand</i> the characteristics, settlement periods, coupons/dividends, terms and maturities (where appropriate) of the following capital markets instruments:  | Ch3, Section 3.2       |
|  | <ul style="list-style-type: none"> <li>• Corporate Bonds</li> <li>• Preferred stock/Preferred shares</li> <li>• Common stocks/Ordinary shares</li> </ul>  |                        |
| 3.3  | <i>Understand</i> the characteristics of the following Arabian market – place:  | Ch3, Section 3.3       |
|  | <ul style="list-style-type: none"> <li>• Treasury Bills</li> <li>• Government Bonds</li> <li>• Repurchase Agreements</li> </ul>   |                        |
| 3.4  | <i>Know</i> the characteristics of the following international investments and investment vehicles and the exchanges on which they are traded:  | Ch3, Section 3.4       |
|  | <ul style="list-style-type: none"> <li>• American depository receipts</li> <li>• Eurobonds</li> <li>• Overseas government debt (UK, US, Japan Australia, France, Germany)</li> <li>• Settlement periods, coupons, terms and maturities</li> <li>• Overseas corporate bonds (UK, US, Japan, Australia, France, Germany)</li> </ul> |                        |
| <b>ELEMENT 4 ECONOMIC FRAMEWORK</b>                          |   | <b>Chapter/section</b> |
| <b>4.1 Economics: Gross Domestic Product</b>                 |   |                        |
| On completion the candidate should:                          |   |                        |
| 4.1.1  | <i>Understand</i> gross domestic product (GDP), how it is measured and its significance   | Ch4, Section 4.1.1     |
| 4.1.2  | <i>Know</i> the differences between Gross Domestic Product and Gross National Product   | Ch4, Section 4.1.2     |
| 4.1.3  | <i>Know</i> the differences between nominal GDP and real GDP  | Ch4, Section 4.1.3     |
| <b>4.2 Economic Fluctuations: Unemployment and Inflation</b> |   |                        |
| On completion the candidate should:                          |   |                        |
| 4.2.1  | <i>Understand</i> what is meant by the “Business Cycle” its effects and various stages:   | Ch4, Section 4.2.1     |
|  | <ul style="list-style-type: none"> <li>• Effect on cyclical companies</li> <li>• Effect on defensive companies</li> <li>• Prosperity recession, depression and recovery</li> </ul>  |                        |
| 4.2.2  | <i>Know</i> the main leading, coincident and lagging indicators that assist economists to identify the state of the “Business Cycle”  | Ch4, Section 4.2.2     |
| 4.2.3  | <i>Understand</i> the significance of unemployment in the economy   | Ch4, Section 4.2.3     |
| 4.2.4  | <i>Understand</i> the significance of inflation in the economy  | Ch4, Section 4.2.4     |
| <b>4.3 Fiscal Policy</b>                                     |   |                        |
| On completion the candidate should:                          |   |                        |
| 4.3.1  | <i>Understand</i> the effect of fiscal policy on the economy  | Ch4, Section 4.3.1     |
|  | <ul style="list-style-type: none"> <li>• Expansionary policy</li> <li>• Contractionary policy</li> <li>• Taxes</li> <li>• Budget deficit</li> <li>• Financing the policy</li> </ul>   |                        |

| <b>4.4 Money and The Banking System</b>                 |  |                        |
|---|--|------------------------|
| On completion the candidate should:                     |  |                        |
| 4.4.1   | <i>Know</i> the various definitions of money supply and their use by the central bank  | Ch4, Section 4.4.1     |
| 4.4.2   | <i>Know</i> the effect of changes in interest rates on stock prices, business investment, domestic expenditure and the economy | Ch4, Section 4.4.2     |
| 4.4.3   | <i>Understand</i> the characteristics of monetary policy and the tools the central bank to influence money supply:             | Ch4, Section 4.4.3     |
|   | • Open market operations   |                        |
|   | • The discount rate  |                        |
|   | • Reserve requirements   |                        |
| <b>4.5 Foreign Exchange and The Global Economy</b>      |  |                        |
| On completion the candidate should:                     |  |                        |
| 4.5.1   | <i>Understand</i> the characteristics of the Foreign Exchange Market and the manner in which exchange rates are quoted         | Ch4, Section 4.5.1     |
|   | • Spot rates   |                        |
|   | • Forward rates  |                        |
|   | • Cross rates  |                        |
|   | • Premiums and discounts   |                        |
|   | • Bid – offer spreads  |                        |
|   | • Risks  |                        |
|   | • Settlement   |                        |
| 4.5.2   | <i>Know</i> the differences between fixed and floating exchange rate systems   | Ch4, Section 4.5.3     |
| 4.5.3   | <i>Know</i> the factors that determine the value of a currency:  | Ch4, Section 4.5.4     |
|   | • Supply and demand  |                        |
|   | • Inflation  |                        |
|   | • Interest rates   |                        |
|   | • Economic performance   |                        |
| 4.5.4   | <i>Understand</i> basic details of the Balance of Payments accounts and their significance in the economy:                     | Ch4, Section 4.5.2     |
|   | • Current account  |                        |
|   | • Capital account  |                        |
|   | • Surplus  |                        |
|   | • Deficit  |                        |
|   | • Liquidity  |                        |
| <b>ELEMENT 5 FINANCIAL STATEMENT: BASICS</b>            |  | <b>Chapter/section</b> |
| <b>5.1 Financial Statement Analysis: Basic Concepts</b> |  |                        |
| On completion the candidate should:                     |  |                        |
| 5.1.1   | <i>Understand</i> the purpose and main constituents of the Balance sheet:  | Ch5, Section 5.1.1     |
|   | • Current assets   |                        |
|   | • Fixed assets   |                        |
|   | • Current liabilities  |                        |
|   | • Shareholders' equity   |                        |
| 5.1.2   | <i>Understand</i> the purpose and main constituents of the Income statement (Profit and Loss Account):                         | Ch5, Section 5.1.2     |
|   | • Net sales  |                        |

|  |                        |
|--|------------------------|
| • Expenses   |                        |
| • Operating profit   |                        |
| • Interest expenses  |                        |
| <b>5.2 Statements of Cash Flow</b>   |                        |
| On completion the candidate should:  |                        |
| 5.2.1 <i>Understand</i> cash flow statements, their purpose and main constituents  | Ch5, Section 5.2.1     |
| <b>5.3 Periodic Financial Reports</b>  |                        |
| On completion the candidate should:  |                        |
| 5.3.1 <i>Know</i> the content of financial reports of listed companies in Saudi Arabia   | Ch5, Section 5.3.1     |
| <b>ELEMENT 6 FINANCIAL STATEMENT: ANALYSIS</b>   | <b>Chapter/section</b> |
| <b>6.1 Analysis of Financial Statements</b>  |                        |
| On completion the candidate should:  |                        |
| 6.1.1 <i>Understand</i> the purpose and types of common size financial statement:  | Ch6, Section 6.1.1     |
| • Common size balance sheet  |                        |
| • Vertical balance sheet analysis  |                        |
| • Horizontal balance sheet analysis  |                        |
| 6.1.2 <i>Understand</i> the purpose and types of common size financial statement:  | Ch6, Section 6.1.2     |
| • Common size income statements  |                        |
| • Vertical income statement analysis   |                        |
| • Horizontal income statement analysis   |                        |
| <b>6.2 Ratio Analysis</b>  |                        |
| On completion the candidate should:  |                        |
| 6.2.1 <i>Understand</i> the main liquidity ratios, their purposes, limitation and the effect of changes in the constituent values      | Ch6, Section 6.2.1     |
| 6.2.2 <i>Be able to calculate</i> the main liquidity ratios  | Ch6, Section 6.2.2     |
| 6.2.3 <i>Understand</i> the main leverage ratios, their purposes, limitations and the effect of changes in the constituent values      | Ch6, Section 6.2.3     |
| 6.2.4 <i>Be able to calculate</i> the main leverage ratios   | Ch6, Section 6.2.4     |
| 6.2.5 <i>Understand</i> the main profitability ratios, their purposes, limitations and the effect of changes in the constituent values | Ch6, Section 6.2.5     |
| 6.2.6 <i>Be able to calculate</i> the main profitability ratios  | Ch6, Section 6.2.6     |
| 6.2.7 <i>Understand</i> the main market value ratios, their purposes, limitations and the effect of changes in the constituent values  | Ch6, Section 6.2.7     |
| 6.2.8 <i>Be able to calculate</i> the main market value ratios   | Ch6, Section 6.2.8     |
| <b>ELEMENT 7 CORPORATE ACTIONS</b>   | <b>Chapter/section</b> |
| <b>7.1 Mandatory Corporate Actions</b>   |                        |
| On completion the candidate should:  |                        |
| 7.1.1 <i>Know</i> the characteristics of the following mandatory events:   | Ch7, Section 7.1.1     |
| • Dividends (cash and stock)   |                        |
| • Interest and coupon payments   |                        |
| • Bonus issues   |                        |
| • Splits and consolidations  |                        |
| • Capital repayments   |                        |

|  |  |                    |
|--|--|--------------------|
| 7.1.2  | <i>Understand</i> the three main methods of dividends distribution, their advantages and disadvantages   | Ch7, Section 7.1.2 |
|  | <ul style="list-style-type: none"> <li>• Cash dividend</li> <li>• Stock dividend</li> <li>• Stock repurchase</li> </ul>  |                    |
| 7.1.3  | <i>Understand</i> the characteristics of stock dividends (scrip dividends (scrip dividends) and their effect on shareholders' equity   | Ch7, Section 7.1.3 |
|  | <ul style="list-style-type: none"> <li>• In place of a cash dividend</li> <li>• Market price</li> <li>• Shareholders' equity</li> <li>• Effect on earnings per share and the price/earnings ratio</li> </ul> |                    |
| Note: Understand of the effect on shareholders' equity and the market price may be tested by using simple calculations |  |                    |
| 7.1.4  | <i>Understand</i> the characteristics of stock splits and their treatment within the balance sheet   | Ch7, Section 7.1.4 |
|  | <ul style="list-style-type: none"> <li>• Reasons to split</li> <li>• Market price</li> <li>• Effect on Balance sheet</li> <li>• Reverse splits</li> </ul>  |                    |
| 7.1.5  | <i>Know</i> the various types of dividend policy and the rationale behind dividend distribution  | Ch7, Section 7.1.5 |
| <b>7.2 Voluntary Corporate Actions</b>   |  |                    |
| On completion the candidate should be:   |  |                    |
| 7.2.1  | <i>Know</i> the characteristics of the following voluntary events:   | Ch7, Section 7.2.1 |
|  | <ul style="list-style-type: none"> <li>• Rights issues</li> <li>• Conversions</li> <li>• Takeovers</li> <li>• Exchanges</li> <li>• Initial public offerings</li> </ul>                                       |                    |
| <b>7.3 Dividends Terminology</b>   |  |                    |
| On completion the candidate should:  |  |                    |
| 7.3  | <i>Understand</i> the following terms:   | Ch7, Section 7.3.1 |
|  | <ul style="list-style-type: none"> <li>• Record date</li> <li>• Ex date</li> <li>• Cum benefit</li> <li>• Ex benefit</li> <li>• Special ex</li> <li>• Special cum</li> </ul>                                 |                    |
| Note: Assumption: (T + $\emptyset$ Settlement period   |  |                    |
| <b>7.4 Calculations</b>  |  |                    |
| On completion the candidate should:  |  |                    |
| 7.4  | <i>Be able to calculate</i> corporate actions related data on:   | Ch7, Section 7.4.1 |
|  | <ul style="list-style-type: none"> <li>• Capitalization</li> <li>• Bonus scrip issues</li> <li>• Rights issues</li> </ul>  |                    |

|   |   |                        |
|---|---|------------------------|
| <b>7.5 Sundry Matters</b>   |   |                        |
| On completion the candidate should:   |   |                        |
| 7.5   | <i>Understand</i> basic details of the following as they relate to the various corporate actions:   | Ch7, Section 7.5.1     |
|   | <ul style="list-style-type: none"> <li>• Advantages to the issuer</li> <li>• Use of an underwriter</li> <li>• Stabilization</li> </ul>                      |                        |
| <b>ELEMENT 8 QUANTITATIVE FOUNDATION OF INVESTMENT ANALYSIS</b>             |   | <b>Chapter/section</b> |
| <b>8.1 Time Value of Money</b>  |   |                        |
| On completion of the candidate should:                                      |   |                        |
| 8.1.1   | <i>Understand</i> what is meant by the time value of money  | Ch8, Section 8.1.1     |
| 8.1.2   | <i>Understand</i> how to calculate the future value of funds  | Ch8, Section 8.1.2     |
| 8.1.3   | <i>Understand</i> how to calculate the present value of funds to be received in the future  | Ch8, Section 8.1.3     |
| 8.1.4   | <i>Understand</i> how to calculate the future and present values of annuities   | Ch8, Section 8.1.4     |
| <b>8.2 Rates of Return</b>  |   |                        |
| On completion of the candidate should:                                      |   |                        |
| 8.2   | <i>Understand</i> the calculation of the rate of return on an investment, its purpose, limitations and the effect of changes in the constituent values      | Ch8, Section 8.2.1     |
| Note: The objective may be examined by using numerical calculations         |   |                        |
| 8.2.1   | <i>Understand</i> the calculation of multi – period rates of return on an investment, its purpose, limitations and the effect of changes in the constituent | Ch8, Section 8.2.2     |
| 8.2.2   | <i>Understand</i> the calculation of the expected return on an investment and the effect of changes in the constituent values                               | Ch8, Section 8.2.3     |
| <b>8.3 Investment Risk</b>  |   |                        |
| On completion the candidate should:   |   |                        |
| 8.3   | <i>Understand</i> investment risk as it relates to future returns and the effect of changes in the constituent values                                       | Ch8, Section 8.3.1     |
| Note: Calculation of standard deviation is not required in the, examination |   |                        |
| <b>ELEMENT 9 ASSET VALUATION: EQUITY INVESTMENTS</b>                        |   | <b>Chapter/section</b> |
| <b>9.1 Introduction to Security Valuation</b>                               |   |                        |
| On completion the candidate should:   |   |                        |
| 9.1.1   | <i>Understand</i> the basic principles of industry and sector analysis  | Ch9, Section 9.1.1     |
| 9.1.2   | <i>Know</i> the stages in an industry life cycle:   | Ch9, Section 9.2.1     |
|   | <ul style="list-style-type: none"> <li>• Start – up</li> <li>• Growth</li> <li>• Consolidation</li> <li>• Decline</li> </ul>                                |                        |
| 9.1.3   | <i>Know</i> the differences between Cyclical and Defensive Industries   | Ch9, Section 9.2.2     |

|  |  |                        |
|--|--|------------------------|
| 9.1.4  | <i>Know</i> how the main types of investments are valued   | Ch9, Section 9.1.2     |
|  | <ul style="list-style-type: none"> <li>• Preferred stock</li> <li>• Common stock (ordinary shares) <ul style="list-style-type: none"> <li>○ Constant level dividends</li> <li>○ Constant growth dividends</li> </ul> </li> </ul>                               |                        |
| Note: This objective may be tested by using numerical calculations |  |                        |
| <b>9.2 Price multiples</b>   |  |                        |
| On completion the candidate should:                                |  |                        |
| 9.2.1  | <i>Understand</i> how analysts use various price multiple ratios   |                        |
|  | <ul style="list-style-type: none"> <li>• Price / Earnings</li> <li>• Price / Cash flow</li> <li>• Price / Book value</li> <li>• Price / Sales</li> </ul>   | Ch9, Section 9.4.1     |
| <b>9.3 Technical Analysis</b>                                      |  |                        |
| On completion the candidate should:                                |  |                        |
| 9.3.1  | <i>Understand</i> the characteristics of technical analysis:   | Ch9, Section 9.3.1     |
|  | <ul style="list-style-type: none"> <li>• Charting</li> <li>• Market Fundamentals</li> <li>• Price evaluation</li> <li>• Trading activity</li> <li>• Sentiment indicators</li> <li>• Flow of funds indicators</li> <li>• Market structure indicators</li> </ul> |                        |
| <b>ELEMENT 10 ASSET VALUATION: DEBT INSTRUMENTS</b>                |  | <b>Chapter/section</b> |
| <b>10.1 Features of Debt Securities</b>                            |  |                        |
| On completion the candidate should:                                |  |                        |
| 10.1.1   | <i>Understand</i> the various options that may be available in respect of Corporate Bonds:   | Ch10, Section 10.1.1   |
|  | <ul style="list-style-type: none"> <li>• Call provisions</li> <li>• Convertible Bonds</li> <li>• Sinking fund provision</li> <li>• Sinking fund provision</li> <li>• Coupon structures</li> </ul>  |                        |
| 10.1.2   | <i>Understand</i> and be able calculate the price of a Bond (annual or semi – annual coupons)  | Ch10, Section 10.1.2   |
| <b>10.2 Risk Associated with Investing in Bonds</b>                |  |                        |
| On completion the candidate should:                                |  |                        |
| 10.2.1   | <i>Understand</i> the various risks faces by an investor in Bonds  | Ch10, Section 10.2.1   |
|  | <ul style="list-style-type: none"> <li>• Interest rate risk (Price risk)</li> <li>• Inflation risk</li> <li>• Liquidity risk</li> <li>• Default risk</li> </ul>  |                        |
| 10.2.2   | <i>Understand</i> the additional risks faced by an investor when investing in Bonds issued outside Saudi Arabia  | Ch10, Section 10.2.2   |

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| <b>10.3 Introduction to The valuation of Debt Securities</b> |   |                        |
| On completion the candidate should:                          |   |                        |
| 10.3.1   | <i>Understand</i> the relationship between the price of a bond and its yield                      | Ch10, Section 10.3.1   |
| 10.3.2   | <i>Understand</i> the relationship between the price of a Bond and its maturity                   | Ch10, Section 10.3.2   |
| 10.3.3   | <i>Understand</i> the characteristics of zero coupon Bonds and the calculation of prices          | Ch10, Section 10.3.3   |
| <b>ELEMENT 11 DERIVATIVES</b>                                |   | <b>Chapter/section</b> |
| <b>11.1 Derivative Markets and Instruments</b>               |   |                        |
| On completion the candidate should:                          |   |                        |
| 11.1.1   | <i>Know</i> the basic types of derivative contracts:  | Ch11, Section 11.1.1   |
|  | • Forwards  |                        |
|  | • Futures   |                        |
|  | • Options   |                        |
|  | • Swaps   |                        |
| <b>11.2 Forward Contracts</b>                                |   |                        |
| On completion the candidate should:                          |   |                        |
| 11.2.1   | <i>Understand</i> the characteristics of Forward Contracts and the risks undertaken by each party | Ch11, Section 11.2.1   |
| <b>11.3 Future Contracts</b>                                 |   |                        |
| On completion the candidate should:                          |   |                        |
| 11.3.1   | <i>Understand</i> the characteristics of Future Contracts and the risk undertaken by each party   | Ch11, Section 11.3.1   |
| 11.3.2   | <i>Know</i> how margin is used to reduce risk and the concept of Marking to Market                | Ch11, Section 11.3.2   |
| 11.3.3   | <i>Understand</i> the differences between Forward Contracts and Future Contracts:                 | Ch11, Section 11.3.3   |
|  | • Default risk  |                        |
|  | • Marketability risk  |                        |
|  | • Transactions cost   |                        |
|  | • Daily settlement  |                        |
|  | • Delivery  |                        |
|  | • Flexibility   |                        |
|  | • Price fluctuation limits  |                        |
| <b>11.4 Option Contracts</b>                                 |   |                        |
| On completion the candidate should:                          |   |                        |
| 11.4.1   | <i>Understand</i> the characteristics of option contracts and the risks undertaken by each party  | Ch11, Section 11.4.1   |
| <b>11.5 Swap Contracts</b>                                   |   |                        |
| On completion the candidate should:                          |   |                        |
| 11.5.1   | <i>Understand</i> the characteristics and basic structure of an interest rate swap                | Ch11, Section 11.5.1   |

| <b>ELEMENT 12 FOUNDATIONS OF INVESTMENT: DECISION MAKING</b>  | <b>Chapter/section</b> |
|---|------------------------|
| <b>12.1 The Investment Setting</b>  |                        |
| On completion the candidate should:   |                        |
| 12.1.1 <i>Understand</i> the concept of a required rate of rate and the components from which it is derived:    | Ch12, Section 12.1.1   |
| • Real risk free rate   |                        |
| • Inflation premium   |                        |
| • Risk premium  |                        |
| 12.1.2 <i>Understand</i> what is meant by and the effects of the real risk free rate                            | Ch12, Section 12.1.2   |
| 12.1.3 <i>Understand</i> what is meant by and the effects of inflation premium                                  | Ch12, Section 12.1.3   |
| 12.1.4 <i>Understand</i> what is meant by and the effects of risk premium                                       | Ch12, Section 12.1.4   |
| 12.1.5 <i>Understand</i> the relationship between risk and reward   | Ch12, Section 12.1.5   |
| <b>12.2 An Introduction to Portfolio Management</b>   |                        |
| On completion the candidate should:   |                        |
| 12.2.1 <i>Understand</i> diversification as portfolio management tool   | Ch12, Section 12.2.1   |
| 12.2.2 <i>Know</i> the components used to calculate the risk and return on a portfolio:                         | Ch12, Section 12.2.2   |
| • Proportion of funds invested in each asset  |                        |
| • The return and risk of each asset   |                        |
| • The relationship between the return of the various assets (correlation)                                       |                        |
| Note: Candidates are not expected to calculate the Portfolio Risk (stander deviation)                           |                        |
| <b>12.3 An Introduction to Asset Pricing Models</b>   |                        |
| On completion the candidate should:   |                        |
| 12.3.1 <i>Understand</i> the differences between unique (non – systematic) risk and market (systematic) risk    | Ch12, Section 12.3.1   |
| 12.3.2 <i>Understand</i> the Capital Asset Pricing Model and the use of Beta in identifying risk premium        | Ch12, Section 12.3.2   |
| 12.3.3 <i>Be able to calculate</i> the required rate of return on a stock using the Capital Asset Pricing Model | Ch12, Section 12.3.3   |
| <b>ELEMENT 13 MUTUAL FUNDS, EXCHANGE, TRADED FUNDS &amp; HEDGE FUNDS</b>  | <b>Chapter/section</b> |
| <b>13.1 The Basics of Mutual Funds</b>  |                        |
| On completion the candidate should:   |                        |
| 13.1.1 <i>Know</i> the general characteristics of mutual funds  | Ch13, Section 13.1.1   |
| 13.1.2 <i>Know</i> the advantages of mutual funds to the investor   | Ch13, Section 13.1.2   |
| 13.1.3 <i>Know</i> the various fees and other charges levied on mutual funds                                    | Ch13, Section 13.1.3   |
| 13.1.4 <i>Understand</i> what is meant by the Net Asset Value (NAV) of a fund and be able to calculate (NAV)    | Ch13, Section 13.1.4   |
| 13.1.5 <i>Understand</i> the differences between Open Ended Funds and Closed Ended Funds                        | Ch13, Section 13.1.5   |
| 13.1.6 <i>Know</i> the various different categories of mutual fund:   | Ch13, Section 13.1.6   |
| • Money market  |                        |

|  |  |                        |
|--|--|------------------------|
|  | • Bond   |                        |
|  | • Stock  |                        |
|  | • Balanced   |                        |
|  | • Country  |                        |
|  | • Index  |                        |
| 13.1.7   | <i>Know</i> the three main types of objectives adopted by mutual funds:                                | Ch13, Section 13.1.7   |
|  | • Aggressive growth fund   |                        |
|  | • Growth and income fund   |                        |
|  | • Income fund  |                        |
| <b>13.2 Performance Measures for Mutual Funds</b>      |  |                        |
| On completion the candidate should:                    |  |                        |
| 13.2   | <i>Understand</i> and calculate the different measure of performance of mutual funds:                  | Ch13, Section 13.2.1   |
|  | • Standard deviation   |                        |
|  | • Beta   |                        |
|  | • Share index  |                        |
|  | • Alpha  |                        |
| <b>13.3 Exchange Traded Funds (ETFS)</b>               |  |                        |
| On completion the candidate should:                    |  |                        |
| 13.3.1   | <i>Know</i> the basics of exchange traded funds  | Ch13, Section 13.3.1   |
| 13.3.2   | <i>Understand</i> the differences between exchange traded funds and mutual funds                       | Ch13, Section 13.3.2   |
| <b>13.4 Hedge Funds</b>                                |  |                        |
| On completion the candidate should:                    |  |                        |
| 13.4   | <i>Understand</i> what is meant by hedge funds   | Ch13, Section 13.4     |
| <b>ELEMENT 14 SHARIAH – COMPLIANT INVESTMENT TOOLS</b> |  | <b>Chapter/section</b> |
| <b>14.1 Musharaka or Partnership Contracts</b>         |  |                        |
| On completion the candidate should be:                 |  |                        |
| 14.1.1   | <i>Know</i> the basic terms of a Musharaka contract  | Ch14, Section 14.1.1   |
| 14.1.2   | <i>Understand</i> the rights and responsibilities of the bank under a Musharaka contract               | Ch14, Section 14.1.2   |
| 14.1.3   | <i>Understand</i> the rights and responsibilities of the client under a Musharaka contract             | Ch14, Section 14.1.3   |
| <b>14.2 MUDARABA Contracts</b>                         |  |                        |
| On completion the candidate should:                    |  |                        |
| 14.2.1   | <i>Know</i> the basic terms of a Mudaraba contract   | Ch14, Section 14.2.1   |
| 14.2.2   | <i>Understand</i> the rights and responsibilities of the bank under a Mudaraba contract                | Ch14, Section 14.2.2   |
| 14.2.3   | <i>Understand</i> the rights and responsibilities of the client under a Mudaraba contract              | Ch14, Section 14.2.3   |
| 14.2.4   | <i>Understand</i> the differences between a special Mudaraba contract and a Multiple Mudaraba contract | Ch14, Section 14.2.4   |
| <b>14.3 Murabaha Agreement</b>                         |  |                        |
| On completion the candidate should:                    |  |                        |
| 14.3.1   | <i>Know</i> the basic terms of a Murabaha agreement  | Ch14, Section 14.3.1   |
| 14.3.2   | <i>Understand</i> the rights and responsibilities of the bank under a Murabaha agreement               | Ch14, Section 14.3.2   |

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|---|--|------------------------|
| 14.3.3  | <i>Understand</i> the rights and responsibilities of the client under a Murabaha agreement                                 | Ch14, Section 14.3.3   |
| <b>14.4 Other Specific Contracts</b>                      |  |                        |
| On completion the candidate should:                       |  |                        |
| 14.4.1  | <i>Understand</i> the characteristics of a Salam Sale transaction and the conditions that it must meet                     | Ch14, Section 14.4.1   |
| 14.4.2  | <i>Understand</i> the characteristics of a Cash and Credit Sale  | Ch14, Section 14.4.2   |
| 14.4.3  | <i>Know</i> the basic details of an Istisna Contract   | Ch14, Section 14.4.3   |
| 14.4.4  | <i>Know</i> the basic details of financing leases and operating leases and the differences between them                    | Ch14, Section 14.4.4   |
| <b>ELEMENT 15 MERGERS, ACQUISITIONS AND RESTURCTURING</b> |  | <b>Chapter/section</b> |
| <b>15.1 Basics of Mergers and Acquisitions</b>            |  |                        |
| On completion the candidate should:                       |  |                        |
| 15.1.1  | <i>Know</i> the basic concept of mergers and acquisition   | Ch15, Section 15.1.1   |
| 15.1.2  | <i>Understand</i> the basics types of mergers  | Ch15, Section 15.1.2   |
| 15.1.3  | <i>Understand</i> the basic types and methods of acquisitions  | Ch15, Section 15.1.3   |
| <b>15.2 Restructuring</b>                                 |  |                        |
| On completion the candidate should be:                    |  |                        |
| 15.2  | <i>Understand</i> the various types of restructuring methods   | Ch15, Section 15.2.1   |
| <b>15.3 Initial Public Offerings (IPO)</b>                |  |                        |
| On completion the candidate should:                       |  |                        |
| 15.3  | <i>Understand</i> the process of initial public offering (IPO)   | Ch15, Section 15.3.1   |
| <b>ELEMENT 16 FUNDAMENTALS OF MARKET COMPLIANCE</b>       |  | <b>Chapter/section</b> |
| <b>16.1 Definition of Compliance</b>                      |  |                        |
| On completion the candidate should:                       |  |                        |
| 16.1  | <i>Know</i> the meaning of compliance as it applies to financial market  | Ch16, Section 16.1     |
| <b>16.2 Importance of compliance</b>                      |  |                        |
| On completion the candidate should:                       |  |                        |
| 16.2  | <i>Understand</i> the importance of compliance function within the authorized persons (APs)                                | Ch16, Section 16.2     |
| <b>16.3 Compliance and Control Functions</b>              |  |                        |
| On completion the candidate should:                       |  |                        |
| 16.3  | <i>Understand</i> the relationship of the compliance function to the internal content function                             | Ch16, Section 16.3     |
| <b>16.4 Developing the compliance Culture</b>             |  |                        |
| On completion the candidate should:                       |  |                        |
| 16.4  | <i>Understand</i> the process of requirements and developing compliance culture within the authorized person organizations | Ch16, Section 16.4     |
| <b>16.5 Costs and Benefits of Compliance</b>              |  |                        |
| On completion the candidate should:                       |  |                        |
| 16.5.1  | <i>Understand</i> the costs incurred by Authorized Persons to create a compliant organization                              | Ch16, Section 16.5.1   |
| 16.5.2  | <i>Understand</i> the benefits gained by the Authorized Persons from compliance  | Ch16, Section 16.5.2   |