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وزارة التعليم
Ministry of Education

المملكة العربية السعودية

Business Finance

Secondary Stage – Pathways System

Second Year

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1448–2026 Edition

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Introduction

The progress and development of countries is measured by their ability to invest in education and by the extent to which their educational system responds to the requirements and changes of the age. It is the responsibility of the Ministry of Education to sustain the development of its educational systems. In response to the concept of Saudi Arabia's Vision 2030 policy, the Ministry has taken the initiative in adopting the Secondary Education Pathways system with the aim of bringing about effective and comprehensive reform at the secondary stage.

The Secondary Education Pathways system provides a distinguished and modern educational model for secondary education in Saudi Arabia, which efficiently contributes to:

- Strengthening the values associated with belonging to our homeland, the Kingdom of Saudi Arabia, and of loyalty to its wise leaders, may Allah protect them, based on pure belief founded on tolerant Islamic teachings.
- Strengthening the values of citizenship by focusing on them in school curricula and in class activities, in line with the demands of sustainable development and the development plans of Saudi Arabia, which emphasize the consolidation of the duality of values and identity, founded on the teachings of Islam and moderation.
- Equipping students with qualifications which are in line with future specializations in universities and colleges or the required professions, and ensuring that educational outputs are consistent with the requirements of the labor market.
- Enabling students to pursue education along their preferred track at an early stage, according to their inclinations and abilities.
- Enabling students to enrol in specific scientific and administrative disciplines relevant to the labor market and future jobs.

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- Integrating students into an enjoyable and stimulating learning environment within the school, based on a constructive philosophy and applied practices within an active learning environment.
- Guiding students on an integrated educational journey from the primary stage to the end of secondary stage, and facilitating the process of their transition to the post-general education stage.
- Providing students with the technical and personal skills which will help them to deal with life and to respond to the requirements of the stage they are at.
- Expanding opportunities for graduate secondary school students through various options in addition to universities, such as by obtaining professional certificates, joining applied colleges, and obtaining job diplomas.

The Pathways system consists of six semesters taught over three years, including a common first year in which students receive lessons in various scientific and human fields, followed by two specialized years during which students follow a general pathway as well as four specialized pathways consistent with their inclinations and abilities. These are: the Legal Pathway, the Business Administration Pathway, the Computer Science and Engineering Pathway, and the Health and Life Pathway. This makes this system the best option for students in terms of:

- The existence of new study materials that comply with the requirements of the so-called Fourth Industrial Revolution and its associated development plans, as well as the Saudi Vision 2030 policy which aims to develop higher-order thinking, problem solving, and research skills.
- Elective field programs which are consistent with the needs of the labor market and the students' own preferences. This enables students to enrol in a specific elective field according to a specific job skills matrix.
- An "inclination" scale that ensures the attainment of students' efficiency levels and effectiveness, and helps them to determine their own tendencies, predispositions, and strengths—all of which enhances their chances of success in the future.

- Volunteer work designed specifically for students in line with the philosophy of activities in schools, which is also one of the graduation requirements. This helps to promote humane values, build up society, and ensures its development and cohesion.
- A transfer procedure that enables students to move from one pathway to another according to specific mechanisms.
- Proficiency classes in which skills are developed and achievement levels improved, by providing intensive and remedial lessons.
- Options for combining education with e-learning and blended learning/teaching, which are built into the Pathways system for reasons of flexibility, convenience, interaction, and effectiveness.
- A graduation project that helps students to integrate theoretical experiences with applied practices.
- Professional and skill-based certificates that are awarded to students after completing specific tasks and certain tests in partnership with specialized bodies.

The Business Administration Pathway is one of the paths developed at the secondary level. It contributes to achieving best practices by investing in human capital and providing students with the knowledge, experience, and skills that will allow them to keep pace with the Fourth Industrial Revolution and the challenges of the 21st century. This pathway also seeks to provide students with the necessary skills to deal with the administrative and financial challenges of the digital economy era in order to ensure a stable economic future. This is driven and supported by: 1) the contents of the Saudi Vision 2030 policy, 2) the two associated programs for developing human capabilities and the quality of life, and 3) the labor market's need for qualified personnel to work in future jobs. The pathway is also intended to promote the values of hard work, discipline, determination, perseverance, positivity, flexibility, national values, enhanced national identity, support for a culture of innovation and entrepreneurship, support for the value of volunteer work—all to prepare students for the labor market and to expand educational opportunities for them. It may also contribute to preparing students to continue their studies at university level, or to obtain professional certificates in one of the related disciplines.

"Business Finance" is one of the main subjects in the Business Administration Pathway. It helps students to:

- Become familiar with and understand the most important basic concepts of financial management.
- Gain knowledge of the relevant authorities, including financial institutions and markets, and their role in making financial and investment decisions at the individual and organizational level.
- Appreciate the importance of financial analysis and how to benefit from it in the making of financial and investment decisions at the individual and organizational level.
- Understand the concepts of yield, risk, and the time value of money.

The subject includes applied exercises relating to what students have learned in order to assist them in solving realistic problems that echo their cognitive skills, under the guidance and supervision of the teacher.

This book *Business Finance* is characterized by modern methods and contains elements that make the subject attractive and appealing, which increases students' willingness to learn and interact with the subject through the concepts, exercises, and various activities the book provides. It emphasizes important aspects of teaching the role of the financial manager as regards analysis, evaluation and decision-making. These aspects are:

- The close connection between the content and real-life situations and problems.
- Presenting the content in diverse, attractive, and interesting ways.
- Highlighting the role of the student in the teaching and learning processes.
- Paying attention to the coherence of its content, which forms an integrated whole.
- Encouraging interest in employing technology in different situations.
- Encouraging interest in employing a variety of methods in evaluating students, taking into account the individual differences between them.

In order to keep pace with global developments in this field, the book *Business Finance* provides the teacher with an integrated set of diverse educational materials that take into account the individual differences between students. Furthermore, it gives references to educational software and websites, all of which provide students with the opportunity to employ modern technologies and practice-based communication that serve to further confirm the book's role in the teaching and learning process.

Finally, we ask Allah the Almighty to grant that this book may contribute to preparing and qualifying our sons and daughters as students for the world of work and business, and that it may act as an incentive for them to invest their own energies wisely, to build their own future, and to contribute to the development of their country.

It is Allah who grants success!

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 8 10/12/2024 15:08

Contents

Preface 15

PART 1

Introduction to Business Finance. 19

Chapter 1 An Introduction to Basic Finance. 22

Learning Objectives 23

1.1 The Divisions of Finance 26

1.1a Financial Institutions 26

1.1b Investments 26

1.1c Business Finance 27

1.2 Key Financial Concepts 29

1.2a Sources of Finance 29

1.2b Risk and Return 30

1.2c Financial Leverage 32

1.2d Valuation 34

1.3 Finance and Other Business Disciplines 36

Summary 38

Questions 39

Assessment Questions 40

Key Terms 41

Mini case 1.1: The Departments of a Business 42

Mini case 1.2: Green Energy as a Long-Term Investment 43

Case Study: E-payments made easy with mada 44

Chapter 2 The Role of Financial Markets and Financial Intermediaries 46

Learning Objectives 47

2.1 Financial Markets 50

2.1a The Role of Money 51

2.1b The Role of Interest Rates 53

2.1c Financial Markets and the Transfer of Savings 56

2.2 Financial Intermediaries 58

2.2a The Investment Bank 58

2.2b The Indirect Transfer Through Financial Intermediaries 60

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 9 10/12/2024 15:08

2.2c Commercial Banks . . . 61
2.2d Other Financial Intermediaries . . . 63
2.2e Money Market Mutual Funds and Money Market Instruments . . . 65
2.2f Competition for Funds . . . 67
2.3 Regulation of Financial Institutions . . . 70
2.3a Reserves . . . 70
Summary . . . 74
Questions . . . 75
Assessment Questions . . . 76
Key Terms . . . 77
Mini case 2.1: Investment For Starting a New Business . . . 78
Mini case 2.2: Financial Intermediaries for Investors . . . 79
Case Study: The Saudi Exchange's role in supporting Saudi Vision 2030 . . . 80

Chapter 3 Analysis of Financial Statements . . . 82
Learning Objectives . . . 83
3.1 General Accounting Principles . . . 85
3.2 The Balance Sheet . . . 88
3.2a Assets . . . 92
3.2b Liabilities . . . 95
3.2c Stockholders' or Shareholders' Equity . . . 96
3.3 The Income Statement . . . 97
3.3a Earnings Per Share . . . 99
3.4 Statement of Cash Flows . . . 100
3.5 Financial Statement Analysis . . . 102
3.5a Vertical Analysis . . . 102
3.5b Horizontal Analysis . . . 103
3.5c Ratio Analysis of Financial Statements . . . 103
3.5d Time Series and Cross-Sectional Analysis . . . 105
3.5e The Value of Ratios as a Tool for Analysis . . . 106
3.6 Liquidity Ratios . . . 108
3.6a The Current Ratio . . . 108
3.6b The Quick Ratio . . . 110
3.7 Activity Ratios . . . 111
3.7a Inventory Turnover . . . 111
3.7b Receivables Turnover . . . 112
3.7c Fixed Asset and Total Asset Turnover . . . 113
3.8 Profitability Ratios . . . 115
3.8a Gross Profit Margin . . . 115
3.8b Return on Total Assets . . . 116
3.9 Leverage Ratios . . . 117
3.9a Debt/Net Worth Ratio . . . 117
3.9b Debt Ratio . . . 118

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 10 10/12/2024 15:08

3.10 Coverage Ratios . . . 119
3.11 Limitations of Accounting Data . . . 121
Summary . . . 124
Questions . . . 124
Exercises . . . 125
Assessment Questions . . . 127
Key Terms . . . 130
Key Formulas . . . 132
Mini case 3.1: Analyzing Performance Through Financial Reporting . . . 133
Mini case 3.2: Understanding the Balance Sheet . . . 134
Mini case 3.3: Using Ratio Analysis to Assess Company Performance . . . 135
Case Study: Financial Reporting at Saudi Aramco . . . 136

PART 2

Chapter 4 An Introduction to Financial Markets . . . 140
Learning Objectives . . . 141
4.1 Markets . . . 143
4.1a Securities Markets . . . 143
4.1b Major Types of Traded Securities . . . 146
4.1c Market Makers . . . 149
4.2 The Mechanics of Investing in Securities . . . 153
4.2a Brokerage Mechanics . . . 153
4.2b Trading on the Saudi Exchange . . . 155
4.3 Special Security Purchases . . . 157
4.3a Margin Purchases . . . 157
4.3b The Short Sale . . . 159
4.3c Other Securities . . . 160
4.4 Measures of Securities Prices . . . 162
4.4a Market Downturns . . . 162
4.4b Market Index . . . 162
4.5 Foreign Securities . . . 166
4.5a Depositary Receipts . . . 166
4.5b International Bonds . . . 166
4.6 Competition in the Securities Markets . . . 168
4.6a Efficient Market Hypothesis (EMH) . . . 168
4.6b Insider Trading . . . 170
Summary . . . 172
Questions . . . 173
Exercises . . . 174
Assessment Questions . . . 177
Key Terms . . . 179

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 11 10/12/2024 15:08

Key Formulas 180
Mini case 4.1: Investment Decisions 181
Mini case 4.2: Efficient Market Hypothesis 182
Mini case 4.3: Long and Short Sales 183
Case Study: Investment Strategies 184

Chapter 5 Opportunity Costs and the Time Value of Money 186
Learning Objectives 187
5.1 Opportunity Costs 190
5.1a Personal Opportunity Costs 190
5.1b Financial Opportunity Costs 191
5.1c Interest Calculations. 192
5.2 The Future Value of a Single Amount 195
5.3 The Future Value of a Series of Amounts (Annuity) 199
5.4 The Present Value of a Single Amount 202
5.5 The Present Value of a Series of Amounts (Annuity) 205
5.6 Other Time Value of Money Situations 209
5.6a Uneven Amounts. 209
5.6b Time Periods of Less Than a Year 209
5.6c Non-annual Compounding 209
5.6d Loan Payments Calculations 209
Summary 211
Questions 211
Exercises 213
Assessment Questions 215
Key Terms 217
Key Formulas 217
Mini case 5.1: Time Value of Money for Investment Calculations 218
Mini case 5.2: Time Value of Money and Personal Financial Decisions 219
Case Study: Selecting a Capital Project 220

Chapter 6 Risk and Its Measurements 222
Learning Objectives 223
6.1 Risk 225
6.1a Types of Risk 225
6.1b Uncontrollable Business Risks. 227
6.1c Controllable Business Risks. 230
6.2 The Return on an Investment 232
6.3 The Sources of Risk. 236
6.4 Risk Measurements. 239
6.4a The Standard Deviation as a Measure of Risk 239
6.4b Beta Coefficients 241
6.4c The Capital Asset Pricing Model and an Investment's Required Return . 242

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 12 10/12/2024 15:08

6.5 Risk Management Strategies . . . 245
6.5a Planning a Risk Management Program . . . 245
6.5b The Risk Management Process . . . 246
6.5c Risk Management Methods . . . 247
6.5d Diversification of Risk . . . 250
Summary . . . 253
Questions . . . 254
Exercises . . . 256
Assessment Questions . . . 257
Key Terms . . . 258
Key Formulas . . . 259
Mini case 6.1: Investment Decisions . . . 260
Mini case 6.2: Risk Management and Insurance . . . 261
Mini case 6.3: Capital Asset Pricing Model (CAPM) . . . 262
Case Study: Investment Consulting . . . 263

Chapter 7 Stock and Bonds . . . 266
Learning Objectives . . . 267
7.1 Sources of Funding . . . 269
7.1a Equity . . . 269
7.2 Common Stock . . . 270
7.3 Dividend Policy . . . 276
7.3a Cash Dividends . . . 279
7.3b Share Diviedends . . . 282
7.3c Stock Splits . . . 284
7.3d Repurchase of Stock . . . 285
7.4 Preferred Stock . . . 288
7.4a Analysis of Preferred Stock . . . 288
7.5 Bonds . . . 291
7.5a Characteristics of All Debt Instruments . . . 291
7.5b Types of Corporate Bonds . . . 296
7.6 Retiring Debt . . . 299
7.6a Calling the Debt . . . 300
7.6b Government Securities . . . 300
7.6c National Debt . . . 301
Summary . . . 303
Questions . . . 304
Exercises . . . 306
Assessment Questions . . . 307
Key Terms . . . 308
Key Formulas . . . 310
Mini case 7.1: Company Stock Issues . . . 311
Mini case 7.2: Preferred vs Common Stock . . . 312
Mini case 7.3: Bonds . . . 313
Case Study: Sources of Funding . . . 314

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 13 10/12/2024 15:08

Chapter 8 Cost of Capital 316
Learning Objectives 317
8.1 Cost of Capital Components 320
8.1a Cost of Debt 320
8.1b Cost of Preferred Stock 323
8.1c Cost of Common Stock 324
8.2 A Weighted-Average Cost of Capital 331
8.3 The Optimal Capital Structure 335
8.4 Other Capital Structure Issues 339
Summary 340
Questions 340
Exercises 342
Assessment Questions 344
Key Terms 345
Key Formulas 346
Mini case 8.1: Cost of Capital for Debt 347
Mini case 8.2: Cost of Capital for Common Stock 348
Mini case 8.3: Weighted Average Cost of Capital 349
Case Study: Cost of Capital for Expanded Global Business Activities 350

Glossary **352**

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 14 10/12/2024 15:08

Preface

In business, finance refers to the supply, management, administration, and regulation of money. It is impossible to succeed in business without a clear understanding of the basics of finance. Whatever career path you choose to take in life—whether the CEO of a large corporation, an individual investor, or the owner of a small independent business—you will come into contact with financial concepts and practices.

Finance is a broad discipline. From an individual's perspective, finance encompasses financial institutions and investments. Virtually every day, most people have some contact with a financial institution. Individuals write and receive checks, review their bank balances online, and use debit or credit cards. As you become an adult, your contact with financial institutions will probably be just as frequent.

People make investment decisions that often meet a specific purpose, such as a stock purchase in a retirement account or a college fund account. They may sell a stock that they believe is overvalued or buy one that they think is undervalued. Many people periodically make investment decisions. They may not even be conscious of these decisions: having income withheld from wages, to be invested in a retirement plan, is an investment decision, even if the individual does not select the specific assets to include in the plan. The same applies when someone leaves funds in a mutual fund or continues to hold a stock. Maintaining those positions are also investment decisions.

From an individual's perspective, finance encompasses two facets: *financial institutions* and *investments*. Business owners and managers make financial decisions, so the third facet of finance is often referred to as *business finance*, or *corporate finance*. The employees of governments and nonprofit institutions also make similar financial decisions. Since

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 15 10/12/2024 15:08

expected future cash inflows and outflows affect current financial decisions, many tools used for making business decisions also apply to non-business financial decisions.

Of course, financial institutions, investments, and business finance do not operate independently. Some courses in finance are called 'Managerial Finance', while others have titles such as 'Financial Management'. The focus in managerial finance is business financial decision making. Financial management is generally broader and combines financial institutions, investments, and business finance, although the emphasis is usually on their application to business decision making.

Business Finance introduces you to a range of financial institutions that play a central role in the Saudi economy. These include regulatory bodies and intermediaries that facilitate a range of transactions and serve the financial markets. Among these, one of the most important is the Saudi Central Bank (SAMA), which fulfills a range of functions from issuing currency and setting monetary policy to regulating the banking industry. The Saudi Exchange (Tadawul) is another key institution that connects businesses with investors. As highlighted in the book, the Saudi Exchange is one of many institutions helping to support the objectives of Saudi Vision 2030.

This text introduces you to the key areas of the finance discipline. It provides you with a breadth of knowledge of finance and is a foundation on which you may build. This text gives you a working knowledge of the terms, environment, and mechanics of financial decision making.

Besides introducing you to the broad field of finance, *Business Finance* also aims to encourage all students to do additional work in the field. To do this additional work, you need a basic background. By exposing you to all facets of finance, this textbook lays a foundation that will encourage and facilitate your taking of additional courses in finance.

Pedagogical Features

All textbooks feature a variety of pedagogical tools designed to improve learning.

Learning Outcomes are stated at the start of each chapter to give a clear outline of the concepts that will be addressed. After completing a

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 16 10/12/2024 15:08

chapter, it is useful to revisit these Learning Outcomes to ensure that each step has been clearly understood.

Key Terms are highlighted in bold throughout the text, with definitions placed in boldface in the margins. These key terms for each chapter are then repeated at the end of each chapter in a table for easy reference and revision.

Questions, **Exercises**, and **Assessment Questions** are provided at the end of each chapter, to stimulate thinking and test your understanding of the concepts.

Numerical **You Try It** exercises feature, where relevant, and there are problems and exercises with which to review the material. These problems primarily replicate the text illustrations or present straightforward variations on the text examples.

Real-world **Case Studies** around the themes of each chapter appear at the end of each chapter. Each longer case is accompanied by **Study Questions** and an optional **Online Activity** to test understanding and stimulate further research.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 17 10/12/2024 15:08

Part 1

Introduction to Business Finance

Chapter 1 An Introduction to Basic Finance

Chapter 2 The Role of Financial Markets and Financial Intermediaries

Chapter 3 Analysis of Financial Statements

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 18 10/12/2024 15:08

Introduction to business finance

A core definition of finance is the management of money. Individuals can manage their own personal finances, often with the help of financial planners. Businesses need managers and employees who understand financial principles to ensure a business remains profitable.

Finance Concepts

Personal finance touches an individual's life through activities with financial institutions such as banks for using mobile payments, personal investing, and borrowing. Individuals make personal investments through saving and purchasing stocks. They also need to monitor their debts, such as credit card balances, to ensure they have enough money to cover payments. A wise individual will develop a financial strategy to budget for their costs of living and for investing for retirement.

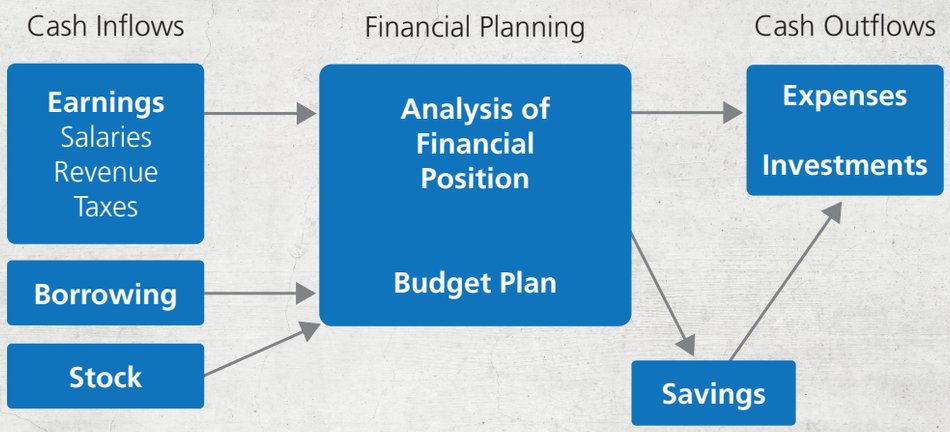
Business finance focuses on the management of money of an organization. Businesses have relationships with financial institutions so they can invest money and borrow funds when needed. Business finance is normally overseen by a financial manager and a finance team. Business finance includes budgeting and forecasting both the inflow and outflow of money. Some inflow of funds comes from the revenue of a business but often a business needs to borrow money or issue stock to have the funds they need to operate and grow.

Business finance is also undertaken by governments and public institutions. The Saudi Council of Ministers approves the financial budget plan for the country each year. Saudi Arabia also manages one of the largest Public Investment Funds (PIF) in the world with a total value of over SAR 2.3 trillion. The Saudi PIF is helping to achieve Saudi Vision 2030's objectives by investing to create new business sectors, companies, and jobs.

Figure 0.1 below shows the basic concept of finance. Inflows of money must be identified. For individuals, this would primarily be salaries from their jobs. Business inflows would primarily be through their revenue from sales and services. Corporations may raise money through an offering of stock, or a share ownership in a business, and for most governments, inflows are primarily through taxes. Revenue for individuals, businesses, and governments can also come from investment earnings.

Individuals, businesses, and governments must engage in financial planning. All of these entities must analyze their financial positions and develop budget plans to ensure that inflows cover outflows. Additional inflows can be used for savings. If expected outflows are greater than inflows, then it will be necessary to borrow or use savings.

FIGURE 0.1
The Basic Concept of Finance



Finance and Other Disciplines in Business Management

Finance is not the same as accounting. Accounting "accounts" for business transactions by creating and verifying reports such as income statements, balance sheets, and cashflow statements. Moreover, managers in all business disciplines must be able to read and understand financial statements. Managers in businesses and government agencies must also use these statements to analyze their financial position and propose budgets for the next accounting cycle.

Assume that a company is proposing to make an investment to start doing business in a new country. The marketing manager will need to assess the risk of selling in that new market and determine the type of

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return on the investment needed to justify the risk. A market analysis may show that profits could be years away, so investments need to be made to keep the business operating. A human resources manager will need to determine the number of people needed to make the business successful and the salaries that will need to be paid. This will go into a proposed budget. In addition, the human resources manager needs to determine if a proposed salary will be too low, resulting in higher employee turnover and higher retraining costs. Information systems costs need to be identified. The finance department will need to determine if they should set up a separate corporation in the country and offer stock in that new corporation or fund the operation from the parent company's funds. Ultimately, top management of the organization will need to develop a financial plan to evaluate revenue inflows and the investment needed over time to receive the expected return on the investment.

Students Benefit from Learning Finance

Students benefit from the study of finance by being able to apply a set of analysis skills to help individuals, businesses, and government agencies manage their money. Moreover, knowledge of business finance is important for all private sector and public sector managers. Every business activity has a financial impact. Managers must be able to read financial statements, create budgets, and engage in financial planning.

Individuals who specialize in finance have highly sought-after skills. This is a high-paying field with transferable skills. Finance specialists can move into top organizational positions, such as a Chief Financial Officer (CFO), or work for global finance firms around the world to help corporations issue stock and governments with investment planning.

There are several finance-related certifications, such as a Chartered Financial Analyst® (CFA). CFA charterholders are investment management professionals who typically help businesses make investment decisions so they can reach financial goals. A Certified Financial Planner™ (CFP®) helps individuals and clients with financially planning to prepare for their life-long financial needs.

This text only introduces you to the field of finance. Hopefully you will find the information compelling and you will consider using this information, not only for your own financial planning, but also to consider a career in finance.

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Ministry of Education
2026 - 1448

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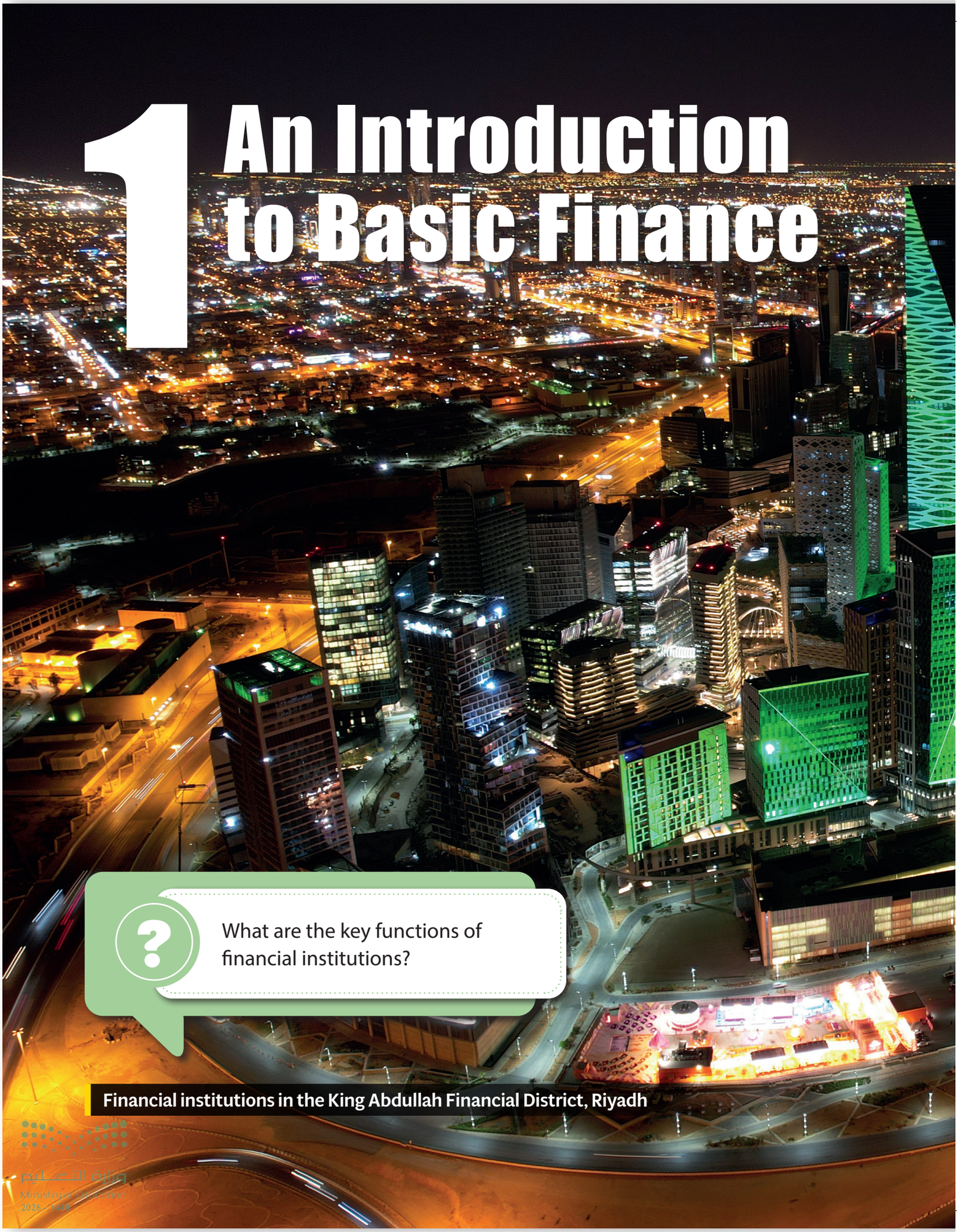
1 An Introduction to Basic Finance



What are the key functions of financial institutions?

Financial institutions in the King Abdullah Financial District, Riyadh

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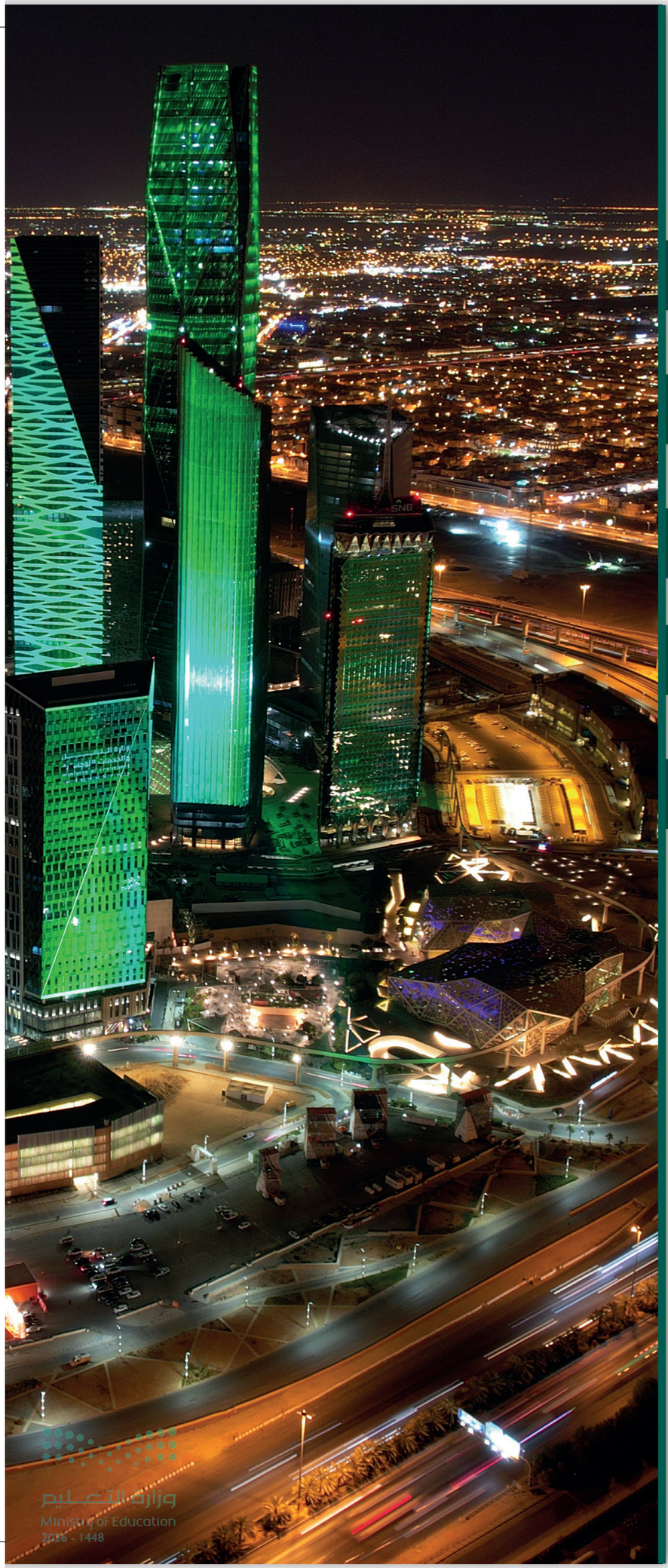

LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Give an overview of the function of financial institutions and provide several examples of financial institutions.
2. Understand that financial practices vary in different cultures throughout the world.
3. Explain the key divisions of finance.
4. Describe the following key financial concepts: sources of finance; risk and return; financial leverage; and valuation.
5. Explain how finance differs from and relates to other business disciplines.

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2016 - 1448

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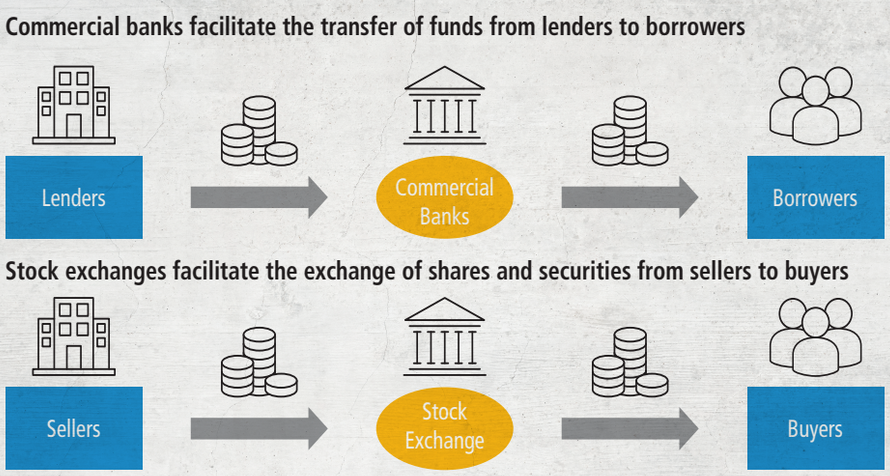
For many people around the world, hardly a day goes by without having contact with financial institutions. They make deposits and withdrawals from banks, buy and sell shares, make contributions to pension plans, pay taxes, buy goods, and borrow funds from a variety of sources. Each of these acts involves contact with a financial institution (see Figure 1.1).

FIGURE 1.1
The Role of Financial Institutions



Some of these institutions facilitate the transfer of funds from lenders to borrowers (such as commercial banks), while others facilitate the exchange of securities from sellers to buyers (for example, the Tadawul Saudi Stock Exchange). Other financial institutions affect the level of income and the stability of consumer prices (such as the Saudi Central Bank).

Participants in these markets for financial products and services range from institutions, large corporate enterprises and the government to the independent market trader and individual saver. You are likely to come into contact with these financial institutions, and increasing your knowledge of them can help you better function in today's financial environment.

To succeed in international business, it is also important to understand that approaches and attitudes towards financial practices can vary considerably in different cultures throughout the world. For example, the concept of monetary interest is central to many aspects of business in Western culture. While some aspects of business finance and certain financial practices may not necessarily be directly applicable in Saudi Arabia, an awareness of them is vital in preparing to operate in the global marketplace.

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2026 - 1448

Business Finance reprint_1p.indb 24 10/12/2024 15:09

Finance studies money and its management. Like economics, it explores the allocation of resources. The process of resource allocation occurs over time. Firms invest in inventory, plant, and equipment, but the returns are earned in the future. An investor constructs a portfolio of assets, but the return is earned in the future. In many regions worldwide, a commercial bank grants a loan in anticipation of earning interest and having the principal repaid. In each case the financial decision is made in the present but the return is in the future.

Because the future is unknown, finance studies the allocation of resources in a world of uncertainty. Of course, future events are anticipated, but they are not certain. Not every possible outcome that may affect returns can be anticipated. Unexpected events infuse financial decisions with uncertainty and the potential risk of loss. Investors, portfolio managers, and corporate financial managers may take actions to help manage risk, but risk still exists and is a major component in the study of finance.

Exercises

Choose the correct answer.

1. Commercial banks facilitate the transfer of funds from lenders to borrowers.

True / False

2. The study of money and its management is called:

a. banking.
b. finance.
c. accounting.
d. economics.

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1.1 The Divisions of Finance

Finance as a discipline is generally divided into three areas: financial institutions, investments, and business finance, as illustrated in Figure 1.2. There is some overlap between divisions. For example:

- Investment decisions and corporate financing decisions are made within the current financial environment and its institutions.
- Business finance is not independent of investments, as there must be individuals who are willing to invest in and buy new securities from the company.

FIGURE 1.2
The Three Areas of Finance



1.1a Financial Institutions

Financial institutions fulfill a range of functions, including the creation of financial assets such as bank deposits, markets for trading securities (for example, the Tadawul Saudi Stock Exchange), and the regulation of these markets. Financial assets are created through investment bankers and financial intermediaries (such as commercial banks, savings and loan associations, and insurance companies), when savings are transferred to those in need of funds. These financial assets can then often be traded as securities among investors, large and small, in the secondary markets, such as stock exchanges.

1.1b Investments

Investment is the process of putting money or resources into a venture in the hope of receiving a greater reward at a later date. By investing in assets, for example, the investor will profit if the value of these assets rises. The range of assets owned by an investor is called a portfolio, and the portfolio is said to be diversified when it includes a variety of different asset types. The study of investments considers the analysis of individual assets and portfolios, as well as financial planning. The financial environment plays a role in the investment process, and a range of factors can affect an investor's decision to buy or sell specific assets.

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How can investment help a business to grow and benefit the investor?

1.1c Business Finance

The study of business finance emphasizes the role of the financial manager:

- The financial manager is responsible for overseeing an organization's budgets, money going in and out of the organization, and for ensuring the necessary funds are in place for day-to-day operation.
- In a large corporation, financial management is performed by staff reporting to the chief financial officer (CFO), whereas a small business must also make many of the same decisions, often with fewer resources to devote to the task.

Financial managers and investors make similar decisions, although on a different scale:

- An individual may have a thousand Saudi Riyals to invest, while a corporate treasurer may have millions to invest among a range of assets.

- The financial manager may make more decisions involving physical assets (like equipment), while the individual investor is largely concerned with financial assets.
- A range of factors in the financial and legal environments can affect decision making for both individual investors and financial managers.
- Individuals typically invest for personal benefit, while a firm's financial manager works within the framework of the business.
- Whatever occupation an individual works in, an understanding of the basic concepts of finance and the role of the financial manager can help to improve communication, analyze data for decision making, and integration among the various business components.

Exercises

Choose the correct answer.

1. The range of assets owned by an investor is called a/an:

- **a.** investment.
- **b.** account.
- **c.** portfolio.
- **d.** saving.

2. In a large corporation, financial staff report to the:

- **a.** chief financial officer.
- **b.** financial asset manager.
- **c.** accounting manager.
- **d.** chief management officer.

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2026 - 1448

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1.2 Key Financial Concepts

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Key Terms

Balance sheet	Return
Assets	Risk
Liabilities	Financial leverage
Equity	Valuation

Several crucial concepts are fundamental to understanding business finance: sources of finance, risk and return, financial leverage, and valuation. Each of these concepts will be addressed in the following sections of this chapter.

1.2a Sources of Finance

Finance is concerned with the management of assets, especially financial assets, and the sources of finance used to acquire the assets. These sources and the assets that a firm owns are often summarized in a financial statement called a **balance sheet**. (Notice that important terms are in **boldface** and the definitions appear in the margin to facilitate learning.) A balance sheet enumerates at a moment in time what an economic unit, such as a firm, owns, its **assets**; what it owes, its **liabilities**; and the owners' contributions to the firm, the **equity**.

Other economic units, such as a household or a government, may also have a balance sheet that lists what is owned (assets) and what is owed (liabilities). However, since there are no owners, the equity section may be given a different name. For example, the difference between the assets and the liabilities might be referred to as the individual's "net worth," or estate.

Although the construction of financial statements is explained in more detail in Chapter 3, the balance sheet in Figure 1.3, representing an international business, provides an introduction.

Balance sheet
A financial statement that enumerates (as of a point in time) what an economic unit owns and owes and its net worth

Assets
Items or property owned by a firm, household, or government and valued in monetary terms

Liabilities
What an economic unit owes expressed in monetary terms

Equity
The sum total of a firm's assets; a firm's book value or net worth

FIGURE 1.3
A Balance Sheet for Corporation X

Corporation X Balance Sheet as of December 31, 20XX			
Assets		**Liabilities and Equity**	
Total assets	SAR 100	Liabilities	SAR 40
		Equity	60
	SAR 100		SAR 100

Corporation X has SAR 100 in assets. It could not have acquired the assets unless someone (or some other firm such as a bank) put up the funds. In this example, creditors have put up SAR 40 (the liabilities). The word *credit* is derived from the Latin word *credo*, which means "I believe," so the creditors believe that the borrower will pay the interest and repay the principal at some future date. The equity (SAR 60) represents the funds invested by the owners (stockholders), who also have a claim on the corporation. The nature of the owners' claim, however, is different because the corporation does not owe them anything. Instead, the owners receive the benefits and bear the risks associated with controlling the corporation.

Both owners of a corporation and its creditors (those who have lent funds to the corporation) are investors, as they are sources of the corporation's capital. Both make their respective investments in anticipation of earning a return, and both bear the associated risk. However, while creditors have a legal claim to be repaid on their investment, the owners do not.

The firm that uses the funds and the investors who supply the funds are dependent upon each other. Bonds, for example, are a major source of long-term funds for many corporations, while investors buy the bonds that a corporation (or government) issues. The sale of the bonds is a source of finance to the corporation, while the purchase of the bonds is a use of investors' funds.

1.2b Risk and Return

The Return

Return
What is earned on an investment; the sum of income and capital gains generated by an investment

Across the globe, investments are made because the individual or management anticipates earning a **return**. Without the expectation of a return, an asset would not be acquired. While assets may generate this return in different ways, the sources of return are the income generated and/or price appreciation. For example:

- One investor may buy stock in anticipation of dividend income and/or capital gains (price appreciation).

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2026 - 1448

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- Another investor may place funds in a savings account because he or she expects to earn interest income.
- The financial manager of a firm may invest in equipment in anticipation that the equipment will generate cash flow and profits.
- A real estate investor may acquire land to develop it and sell the properties at an anticipated higher price.
- The financial manager of a nonprofit institution may acquire short-term securities issued by the government in anticipation of the interest earned.



Why must an investor weigh up the risk against the return?

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2026 - 1448

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The Risk

In each example, investment is made in anticipation of earning a future return. However, as this return is not guaranteed, there is an element of risk. **Risk** is *the degree of uncertainty about whether an anticipated return will be achieved*. If an individual had expected a particular investment to result in a loss rather than a gain, they would likely have chosen an alternative investment instead. While all investments involve some degree of uncertainty, possible sources of risk can be identified, and, to an extent, risk can be managed. One way is to create a 'diversified' portfolio that contains a variety of assets. When the portfolio is diversified, events that reduce the return on a particular asset may increase the return on another. By including both types of asset in the portfolio, the investor reduces the risk of choosing one investment solely over another, and spreads the risk across both.

Risk
The degree of uncertainty about whether an anticipated return will be achieved

The Relationship Between Risk and Return

As can be seen, risk and return are closely linked: the greater the possible return, the greater potential risk attached. All investors and financial managers want to earn a return that is favorable to the amount of risk taken. An investor may be able to achieve a small return with virtually no risk, but to earn a higher return, they will have to accept additional risk. For example, the more they invest in one particularly opportunity, the more they stand to gain or lose from the outcome.

1.2c Financial Leverage

One major source of risk that permeates financial decision making around the world is the choice between equity and debt financing. Someone may acquire an asset by using their own funds or by borrowing them. The same choices are available to firms and governments. A corporation may retain earnings or sell new stock and use the funds to acquire assets. Or the firm may borrow the money. Governments use tax revenues and receipts to buy assets and provide services, but governments also may borrow funds. In each case, the borrower is using **financial leverage**. Financial leverage occurs when an individual or organization borrows funds in return for agreeing to pay fixed payments such as interest and repay the principal

Financial leverage
Use of borrowed funds in return for agreeing to pay a fixed return; use of debt financing

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2026 - 1448

Business Finance reprint_1p.indb 32 10/12/2024 15:09



Why must a borrower aim to earn a higher return than they have agreed to pay the lender?

after a period of time. If the borrower can earn a higher return than they have agreed to pay, the difference accrues to them, and magnifies the return on their investment. Notice, however, that if the borrower earns a lower return, they have to make up the difference, which magnifies their loss. The borrower cannot have it both ways. To increase the potential return, they also increase the potential loss. This trade-off between magnifying returns versus magnifying potential losses is a recurring theme in business.

1.2d Valuation

Valuation
Process of determining what an asset is currently worth

Assets are acquired in the present, but their returns accrue in the future. No individual or firm would purchase an asset unless there was an expected return to compensate for the risk. Since the return is earned in the uncertain future, there has to be a way to express the future in terms of the present. The process of determining what an asset is currently worth is called **valuation**. An asset's value is the present value of the future benefits. For example, the current value of a government bond is the sum of the present value of the expected interest payments and the expected repayment of the principal. The current value of equipment is the present value of the expected cash flows it will generate.

This concept that value is not fixed but rather changes over time is known as the 'time value of money', and is a key consideration in business finance. It is often said that, "Money makes money." That is the essence of the time value of money: a Riyal received in the future is not equivalent to a Riyal received in the present. In other words, money that is available now has the potential to be invested into activities that generate more money. The cash outflow is in the present but the cash inflows are in the future. Time value considers these inflows and outflows to establish the return, helping the financial manager to decide whether or not to proceed with an investment.

The goal of the financial manager is to maximize the company's value. As a company is made up of many assets, its value is linked to the value of these assets and the returns they will generate in the future (see Figure 1.4). If the company has shares of ownership (stock) held by the general public, then the market price of the stock can be used to work out the company's value. The market value of a share of stock times the number of shares gives the value of the company. The value of stock can go up or down, and so the price of a company's stock over time can indicate how well the management is performing.

However, as many companies around the world don't have stock owned by the general public, it is more difficult to work out their current values. In these cases, the company's value is determined only when it is sold or liquidated (drawn to a close to have its assets redistributed). Hence, while owners and managers may use the value of equity on the accounting statements to indicate the company's worth, they cannot be certain of its true value.

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2026 - 1448

Business Finance reprint_1p.indb 34 10/12/2024 15:09

Financial analysis is built on assumptions. For example, the phrase 'investors anticipate a return of XX%' is based on an assumption because the return is not guaranteed. Sometimes, historical data or current data are assumed to apply in the future. While financial managers often use assumptions to help in planning or to predict outcomes, the results can be only as good as the accuracy of those assumptions.

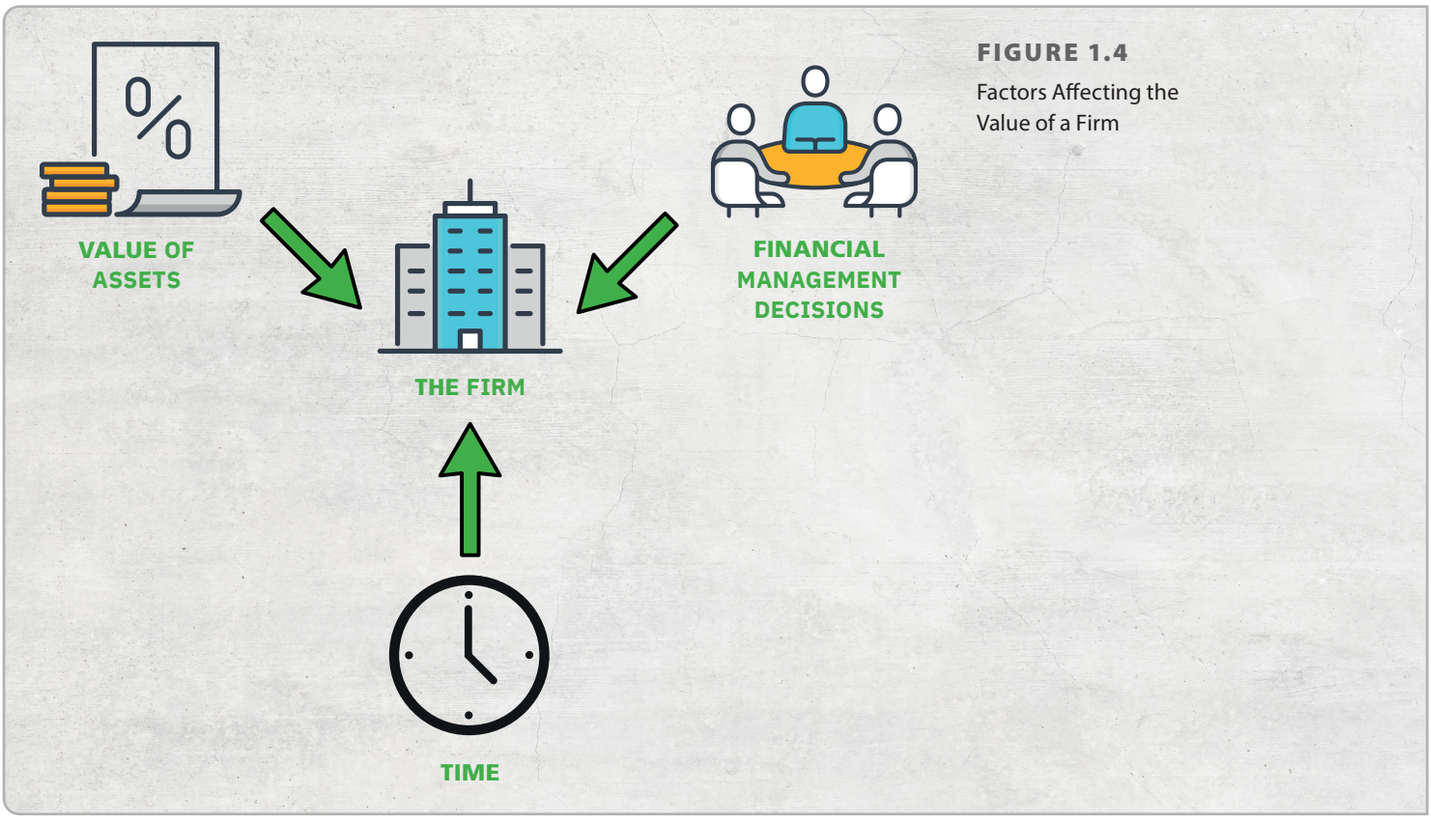

FIGURE 1.4
Factors Affecting the Value of a Firm

The value of a firm is directly linked to the value of its assets and the decisions of the financial management over time. Good financial management will make use of the assets currently available in the present to increase the value of the company's assets in the future.

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1.3 Finance and Other Business Disciplines

The study of finance incorporates concepts from both accounting and economics. Accounting principles and financial statements are a key source of information in business finance, and the analysis of financial statements is an integral component in the value approach to the selection of securities.

With the development of theories of portfolio behavior and asset valuation, economics plays an important role in finance. Theories based on economic principles encompassing corporate financial structure, the importance (or unimportance) of dividends, and option valuation are integral to finance. Empirical tools augment financial analysis, as statistics are a means to verify economic theory as it applies to finance. The ability to test economic and financial hypotheses further enriches the field of finance.

Finance courses are generally offered as part of a program in business, as illustrated in Figure 1.5. Other academic disciplines within business may include information systems, human resource management, and marketing. Finance, however, differs from these areas in one exceedingly important way. It can be studied from two perspectives: that of the users or that of the suppliers of funds.

FIGURE 1.5
Academic Disciplines within Business



Finance incorporates economics and accounting principles, and works alongside other business disciplines including marketing and human resources.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 36 10/12/2024 15:09

In human resource management or marketing, for example, the emphasis is on how each division fits into a business's operations. However, finance can be studied from the perspective of both a business level and an individual investor, as the following examples highlight:

- The tools of analysis used in corporate finance and investments are the same. A firm's financial statements are employed by both management and investors to analyze the firm's financial condition.
- Methods used to value and evaluate an investment in plant and equipment are conceptually the same as those used to value stocks and bonds.
- The calculations of returns on investments in stocks and bonds are the same as the calculations used to determine the returns on investments in plant, equipment, and other assets.
- The tax and legal environments and the financial institutions in which securities are initially sold and subsequently traded apply both to businesses and to individuals.

Although finance can have more than one perspective, many traditional introductory international finance courses emphasize financial management with a corporate emphasis. This approach makes the course more consistent with other classes taught in a business program.

Chapter 1 Assessment

SUMMARY

Finance is the discipline of studying money and its management. Many people around the world come into contact with financial institutions on a daily basis. These institutions fulfill a range of important functions for governments, businesses, organizations, and individuals. This includes facilitating and regulating the transfer of funds from lenders to borrowers, and securities from sellers to buyers. An understanding of finance, and how it is approached around the world, is critical in both preparing for a career in business and in safeguarding an individual's own financial security.

Finance as a discipline is generally divided into three areas: financial institutions, investments, and business finance, although there is some overlap. The study of financial institutions is concerned with organizations such as stock exchanges, financial regulators, banks, intermediaries, and insurance companies. The study of investments is largely concerned with the analysis of individual assets and the construction of well-diversified portfolios. The study of business finance emphasizes the role of the financial manager.

Several key financial concepts are discussed: sources of finance, risk and return, financial leverage, and valuation. The sources of funds and assets owned are often summarized in a balance sheet. Individuals and firms make investments to earn a return, but that return is not certain. All investments involve risk. Financial leverage is often considered an important source of risk. Valuation concerns what an asset is worth. Another important concept is the time value of money, which holds that a Riyal received in the future is not equivalent to a Riyal received in the present. This is because money available now can be invested into activities that will generate more money in future.

The discipline of finance incorporates elements of accounting and economics. Finance courses are generally offered as part of a program in business, which might also include information systems, human resource management, and marketing. However, finance differs from other disciplines in that it can be studied from a business perspective or from the investor's perspective.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 38 10/12/2024 15:09

QUESTIONS

1. List and briefly describe the three key areas that the discipline of finance is generally divided into, using real-life examples from each area to contextualize your answer.

2. Explain what a balance sheet is, by describing its components and function.

3. Use an example to explain how risk and return are related in financial decision making.

4. Describe two examples of investments that involve an element of risk. In each scenario, suggest ways in which the element of risk might be reduced.

5. Describe the key way in which the study of finance differs from the study of other business disciplines such as human resources or marketing.

Business Finance reprint_1p.indb 39 10/12/2024 15:09

ASSESSMENT QUESTIONS

Choose the correct answer.

1. A/an _____ is earned on an investment such as the sum of income and capital gains generated by an investment.

a. asset
c. equity
b. bond
d. return

2. Which of the following is included on a balance sheet?

a. asset
c. equity
b. liabilities
d. all included on a balance sheet

3. _____ is the process of determining what an asset is currently worth.

a. Leverage
c. Bonding
b. Valuation
d. Return

4. The value of a firm is directly linked to the value of its assets and the decisions of the financial management over time.

True / False

5. A Riyal received in the future is equivalent to a Riyal received in the present.

True / False

6. Finance, unlike other business disciplines, can be studied from two perspectives: that of the users or that of the suppliers of funds.

True / False

7. Which of the following is a key source of information in business finance?

a. accounting principles
b. financial statements
c. both accounting principles and financial statements
d. none of these are key sources of information

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2026 - 1448

Business Finance reprint_1p.indb 40 10/12/2024 15:09

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your choice	Definition
1. Assets		**a.** The sum total of a firm's assets; a firm's book value or net worth
2. Balance sheet		**b.** What is earned on an investment; the sum of income and capital gains generated by an investment
3. Equity		**c.** Process of determining what an asset is currently worth
4. Financial leverage		**d.** The degree of uncertainty about whether an anticipated return will be achieved
5. Liabilities		**e.** Items or property owned by a firm, household, or government and valued in monetary terms
6. Return		**f.** Use of borrowed funds in return for agreeing to pay a fixed return; use of debt financing
7. Risk		**g.** What an economic unit owes expressed in monetary terms
8. Valuation		**h.** A financial statement that enumerates (as of a point in time) what an economic unit owns and owes and its net worth

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2026 - 1448

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MINI CASE 1.1

The Departments of a Business

The small business sector is growing in Saudi Arabia. When Omar originally started his own company, he had to take care of every aspect of the business all by himself. As the business has grown, Omar has gradually taken on more employees. He now wishes to organize his team into separate roles, each overseeing a specific part of the business. Omar appoints staff in charge of human resources, information systems, marketing and sales. He believes that organizing the business this way will make it more profitable and maximize the company's value.

Task

1. Considering the themes of this chapter, has Omar forgotten any important roles that every business should have, regardless of industry type?

2. How can the field of financial management help Omar maximize the company's value?

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Ministry of Education
2026 - 1448

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MINI CASE 1.2

Green Energy as a Long-Term Investment

A central aim of Saudi Vision 2030 is to build a sustainable future through investing in green and renewable energy sources. A young student, Amir, wonders why it is necessary to invest lots of money and resources into new energy sources. "After all," he says, "Saudi Arabia has plenty of oil. Why change our approach now?" His friend, Hasan, has been studying financial management and disagrees, emphasizing the importance of future planning and resource allocation. "Investing today sets us up for tomorrow," says Hasan.

Task

1. Do you agree with Amir or Hasan? In terms of business finance, explain some of the benefits of "investing today to set us up for tomorrow".

2. Hasan also notes that it is sensible to have a 'diversified economy' that doesn't rely on one main source of revenue. Explain the advantages of a 'diversified' approach. Is there a parallel in relation to investment decisions made by individual investors?

Business Finance reprint_1p.indb 43 10/12/2024 15:09

CASE STUDY: E-PAYMENTS MADE EASY WITH MADA

Over the last few decades, advances in technology have spurred huge worldwide growth in e-commerce and e-payments. Today, consumers are presented with a range of ways to make digital payments, whether shopping online from the comfort of their homes, or paying for lunch through hand-held smart devices while out and about.

The financial institutions are integral to facilitating the transfer of funds from one party to another, and it is through these organizations that this e-commerce revolution has been made possible. The Saudi Central Bank (SAMA) has invested in an infrastructure that connects buyers and sellers electronically. Mada is a simple, reliable, and universally recognized system that connects ATM (automated teller machine) machines and PoS (point of sale) devices to a network enabling transactions between accounts, while also giving individuals and businesses access to e-banking services.

Mada began as SPAN, the Saudi Payments Network, established in 1990. It is one of several payment-related services offered by Saudi Payments, headquartered in Riyadh. All Saudi banks are required to be compatible with the network, encouraging efficiency through a universally-accepted system across the country. Unlike ATM machines in many other countries worldwide, which often issue a charge for accessing services such as cash withdrawals, mada provides all services in Saudi Arabia to the consumer free of charge.

In today's busy world, the convenience of 'tap-and-pay' contactless payment is making it a standard preference among many customers and retailers. During the global Covid-19 pandemic, contactless payment became mandatory in many parts of the world, to help prevent the spread of infection. The mada Pay app can be downloaded to any compatible device, such as a smartphone or tablet, and can be used with over 130,000 merchants in Saudi Arabia.

Mada also works in conjunction with other global payment service providers, including Visa and Mastercard, to provide international coverage and to utilize their e-payment technology in Saudi Arabia itself. Speaking in March 2018, Ziad Al Yousef of SAMA said: "Mada represents the innovative generation of electronic payments in Saudi Arabia and one of the fastest growing payment systems in the world. Utilizing Mastercard's technology to facilitate online payments via the network will enable Saudi businesses to significantly increase their e-commerce sales by offering consumers more flexibility and convenience and diversify their available payment options."

Ongoing investment in mada is key to supporting Saudi Vision 2030. Promoting digital and online payments helps to fuel the Saudi economy, and supports the growth of SMEs (small- and medium-sized enterprises) and hence new job creation. It's not only customers who can benefit from using

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 44 10/12/2024 15:09

a smartphone to pay; merchants can now also accept payments using their phones too, without the need for a separate PoS device. This 'tap-to-phone' solution, in partnership with Visa, is ideal for independent businesses, as small shops or cafés can take electronic payments without the additional set-up cost of investing in new hardware.

Mada is complemented by other Saudi Payments services that support the objectives of Saudi Vision 2030, including the development of effective e-government. Esal, for example, is a platform providing e-invoicing tools for businesses; Sarie is an instant payment system that transfers funds between local banks, and SADAD is a system principally for paying bills. Saudi Payments' overarching mission is to enable "the payments ecosystem through secure, reliable, interoperable and accessible back-end services."

Study Questions

1. What is the main function of the financial institutions? Link your answer to the case study.

2. How can e-payments help to promote and support small businesses in the private sector?

Online Activity

Research a business in Saudi Arabia that has an online shop. Look at the business's online payment options and system it uses for making e-payments. How easy is it to pay for the goods or services online?

2 The Role of Financial Markets and Financial Intermediaries



What will investors gain from their investment?

Investors discussing recent developments in financial markets at a conference

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2026 - 1448



LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Describe the core components of the financial system.
2. Define money and determine how the money supply is measured.
3. Understand the difference between positive, negative, and flat yield curves.
4. Differentiate the direct and indirect transfer of savings to users of funds.
5. Describe the services of insurance companies.
6. Contrast the various money market instruments.
7. Describe regulations that apply to the banking system.
8. Differentiate required and excess banks' reserves.

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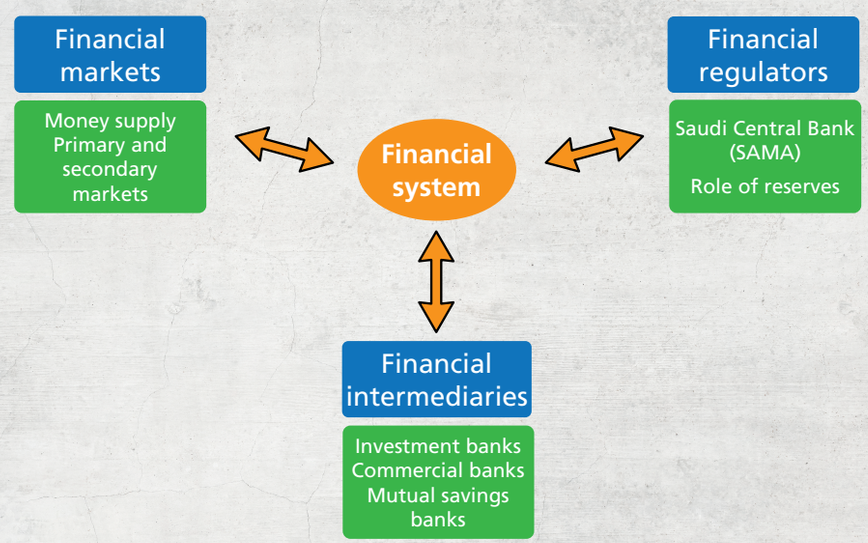
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 47 10/12/2024 15:09

The three core components of the financial system are financial markets, financial intermediaries, and financial regulators, as illustrated in Figure 2.1. Financial markets facilitate the flow of funds in order to finance investments by corporations, governments, and individuals.

FIGURE 2.1
Major Components of the Financial System



Financial institutions are the key players in the financial markets as they perform the function of intermediation and thus determine the flow of funds. The financial regulators perform the role of monitoring and regulating the participants in the financial system. This chapter addresses these interlinking components, citing examples of each and how they function.

Before discussing financial markets in further detail, the concept is introduced by explaining the roles of money and interest rates. This is followed by transfer of savings to investments and the purpose of financial intermediaries through which these savings are channeled to the ultimate users of the funds. Financial intermediaries borrow from one group and lend to another, a process that channels resources into productive investments. Consider how firms would be constrained if they could not borrow funds to purchase plant and equipment. In many parts of the world, individuals rely on borrowing funds through mortgage loans in order to purchase homes. This transfer of savings through financial intermediaries—from individuals with funds to firms, governments, and other individuals who need funds—is one crucial component of the financial system.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 48 10/12/2024 15:09

The central part of this chapter provides a basic introduction to financial intermediaries, with an emphasis on commercial banks, their sources of funds, and the types of loans they make. Commercial banks must compete with other intermediaries for the funds of savers. Attracting these savings is obviously important, since the individual intermediary can lend only what savers have lent it. The subsequent sections of the chapter consider insurance companies, pension plans, money market mutual funds, and money market instruments. Money market mutual funds offer individuals an alternative to the checking accounts, savings accounts, and savings certificates issued by banks.

By acquiring shares in money market mutual funds, individuals are able to invest indirectly in a variety of short-term securities. Since these securities are usually issued in large denominations, most investors have insufficient funds to purchase them. By selling shares in small units, money market mutual funds permit individuals to participate in the market for money market securities. Since money market mutual funds tend to offer marginally higher yields than traditional savings accounts, shares in these funds have become a major competitor with other financial intermediaries for individuals' savings. Finally, the chapter concludes by addressing regulation of the financial system and the role of reserves.

Exercises

Choose the correct answer.

1. Financial markets facilitate the flow of funds in order to finance investments by corporations, governments, and individuals.
   True / False
2. A bank is a financial intermediary.
   True / False

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2.1 Financial Markets

Key Terms

Money	M-1
Banknote	M-2
Liquidity	Term structure of interest rates
Money supply	Yield curve

Financial markets perform two exceedingly important functions. Like financial intermediaries, financial markets facilitate the transfer of funds from savers to firms, governments, and individuals who use the funds. Financial markets, however, also facilitate the transfer of existing securities from sellers to buyers. Individuals are willing to make investments because they know these investments may be subsequently sold through the financial markets.

What are the benefits of having a single currency in a country?



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Ministry of Education
2026 - 1448

2.1a The Role of Money

In considering the function of financial markets, it's useful to understand the role of money. **Money** is anything that is generally accepted in payment for goods and services or for the retirement of debt. This definition has several important words, especially *anything* and *generally accepted*. Anything may perform the role of money, and many different items, including shells, stones, and metals, have served as money. Since the foundation of Saudi Arabia, a variety of coins and banknotes have been used. A **banknote** is a form of paper money in which the government of issue's central bank promises to pay the bearer the sum of its stated value. One of the great achievements of King Abdulaziz was to bring order and unity to the country's monetary system, through a standardized currency. The other important words are *generally accepted*. What serves as money in one place may not be money elsewhere. This fact is readily understood by anyone who travels abroad and must convert one currency to another. The currency that serves as money in Saudi Arabia, called Riyals, is not used as money in other countries. A foreign visitor must convert their currency into Saudi Riyals to buy goods in the Kingdom (see Figure 2.2).

Money
Anything that is generally accepted as a means of payment

Banknote
A form of paper money in which the government of issue's central bank promises to pay the bearer the sum of its stated value

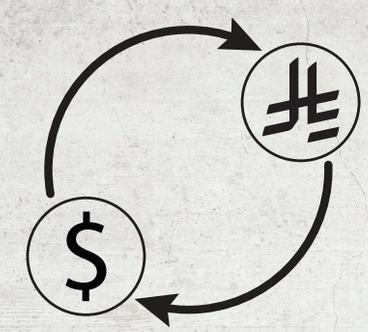

FIGURE 2.2
Currency Conversion

Foreign visitors must convert their currency into Riyals to purchase goods in Saudi Arabia

Money may also be used to transfer purchasing power to the future. In this second role, money can retain its value from one time period to another. The value of this store may change depending on the surrounding variables. Money, however, is only one of many assets that may be used as a store of value. Stocks, bonds, savings accounts, real estate, gold, barrels of oil, and collectibles are some of the various assets that you may use to store value. Shares can be purchased in a range of Saudi Arabian companies, such as Ma'aden and Petro Rabigh.

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2026 - 1448

While you may store value in these nonmonetary assets, you cannot buy goods and services with them. To do that, you must convert the assets into money. The ease with which an asset may be converted into money without loss is its **liquidity**.

Liquidity
Ease of converting an asset into cash without loss

In Saudi Arabia, the supply of money is controlled by the Saudi Central Bank (SAMA), a government organization that is responsible for overseeing the commercial banking system. This function is called monetary supply control. There are equivalent organizations across the world, such as the Federal Reserve in the United States, and the Bank of England in the U.K. While there are some differences in how each operates, these institutions broadly fulfill the same function of setting monetary policy and regulating the banking sector. When conducting international business, an understanding of the financial systems in other relevant countries can prove to be invaluable.

Measures of the Supply of Money

Money supply
Total amount of currency in circulation

M-1
The amount of money in circulation in the form of coins, currency, and demand deposits

M-2
The amount of money in circulation in the form of coins, currency, demand deposits, savings accounts, and small certificates of deposit

There are several measures of the composition of the **money supply**. A traditional measure adopted in many regions (commonly referred to as **M-1**) is the sum of coins and currency in circulation outside of banks plus demand deposits (including interest-bearing checking accounts and travelers' checks) held by the general public in all depository institutions. A broader definition of the supply of money (commonly referred to as **M-2**) includes not only demand deposits, coins, and currency but also regular savings accounts and (where applicable in some countries) small certificates of deposit. A comparison of M-1 and M-2 is illustrated in Figure 2.3.

This broader definition of the money supply (M-2) is preferred by those economists and financial analysts who stress the ease with which individuals may transfer funds among the components of M-2. Individuals may transfer funds from a savings account or time deposit into a checking account. Such a movement increases M-1 because demand deposits have risen, but the transaction has no impact on M-2 because the increase in demand deposits is offset by the decline in the other account.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 52 10/12/2024 15:09

Components included	M-1	M-2
Coins	✓	✓
Currency	✓	✓
Demand deposits	✓	✓
Savings accounts	✗	✓
Small certificates of deposit	✗	✓

FIGURE 2.3
Comparison of M-1 and M-2 Measures of Money Supply

In summary, money is crucial to an advanced economy, for it facilitates the transfer of goods and resources. An advanced economy could not exist without something to perform the role of money. Since a large proportion of the money supply consists of deposits in various depository institutions, the student of finance should understand financial markets, the banking system, and their regulation.

2.1b The Role of Interest Rates

In many regions and markets around the world, the words *money* and *interest* are often used together, but their meanings differ and they perform different roles. Money is a medium of exchange; its value is related to what it will purchase. Interest, as generally understood in business across the globe, is the cost of credit; it is the price paid for the use of someone else's money.

The cost of credit is often expressed as a percentage, that is, the *rate* of interest. Interest rates play a role in the allocation of scarce credit among competing uses for the funds. Higher interest rates increase the cost of credit and should discourage borrowing, so that the scarce credit is directed toward its best usage.

There are many types of loans (such as mortgage loans, trade credit, and bonds). In addition to many debt instruments, there are also many interest rates that reflect the amount borrowed, the length of time the borrower will have the use of the funds, and the creditworthiness of the borrower. Generally, the longer the term of the debt and the riskier (or less creditworthy) the debt instrument, the higher will be the rate of interest.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 53 10/12/2024 15:09

Debt, and hence interest rates, is often classified as short or long term. The time period is arbitrarily established at one year. *Short-term* refers to a year or less. *Long-term* refers to greater than a year. Of course, with the passage of time, long-term debt instruments become short-term when they mature within a year.

Term structure of interest rates
The relationship between yields and the time to maturity for debt with a given level of risk

Yield curve
A graph relating interest rates and the term to maturity

The Term Structure of Interest Rates

The relationship between interest rates (the cost of credit) and the length of time to maturity (the term) for debt in a given risk class is referred to as the **term structure of interest rates**. This structure is illustrated by a **yield curve**, which relates the yield on debt instruments with different terms to maturity. Such a yield curve is illustrated in Figure 2.4, which plots the yield on a range of hypothetical government securities. This figure shows that the bonds with the longest term to maturity have the highest interest rates. For example, short-term securities with three months to maturity had yields of 2.99%, five-year bonds paid 3.63%, and bonds that matured after 20 years paid 4.31%.

Figure 2.4 also illustrates that generally the relationship between yields (interest rates) and time is positive. In some countries, there have been periods when the opposite has occurred. This happens when short-term rates exceed long-term rates, resulting in an inverted yield curve with a negative slope. This is illustrated in Figure 2.5. Securities maturing in less than a year had yields exceeding 14%, while long-term debt that matured after ten years yielded 13%.

Such a yield curve could be the result of a country's central bank responding to inflation by selling short-term government debt securities. Such sales absorb credit by reducing the supply of money and the capacity of banks to lend because paying the central bank for the securities pulls money out of the banking system.

The sales depress securities prices and increase their yields. While the yields on all debt instruments respond to changes in the supply of credit, the selling of short-term securities has the most impact on short-term rates. In the illustration in Figure 2.5, short-term yields rose above long-term rates, resulting in an "inverted" yield curve. There can also be periods when the yield curve is relatively flat, which indicates that there is little difference between the rates of short-term and long-term securities, as illustrated in Figure 2.6.

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2026 - 1448

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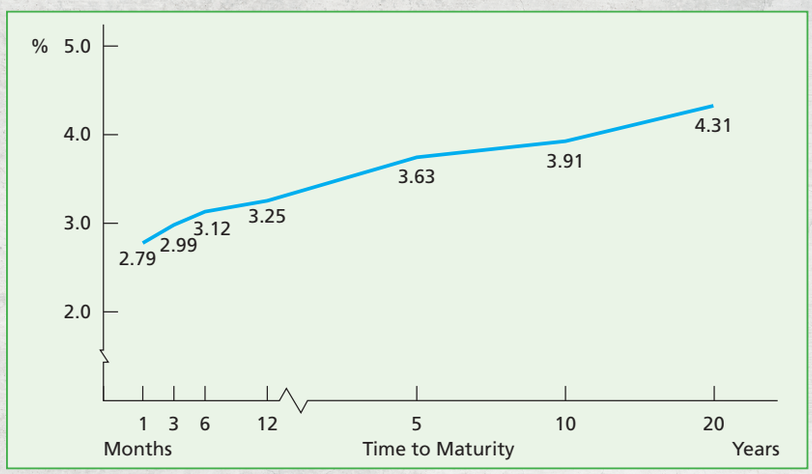

FIGURE 2.4
Example of a Positively Sloped Yield Curve

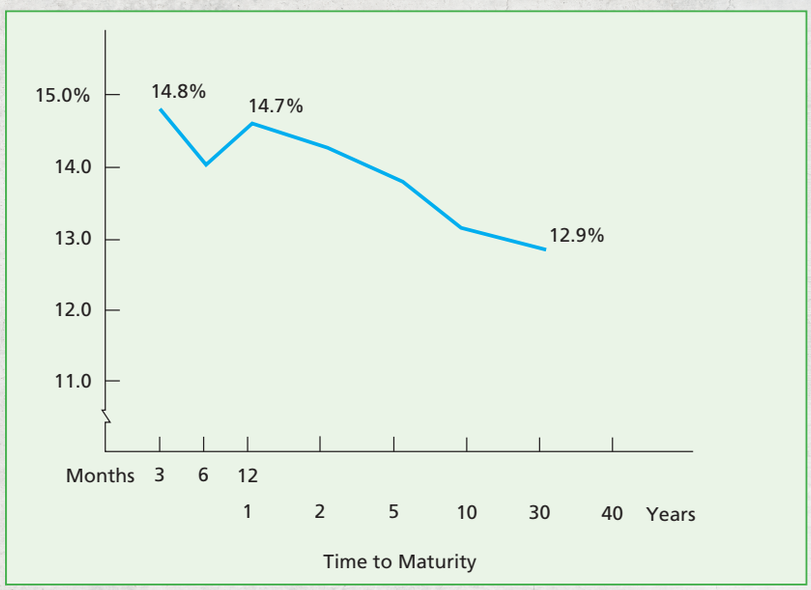

FIGURE 2.5
Example of a Negatively Sloped Yield Curve

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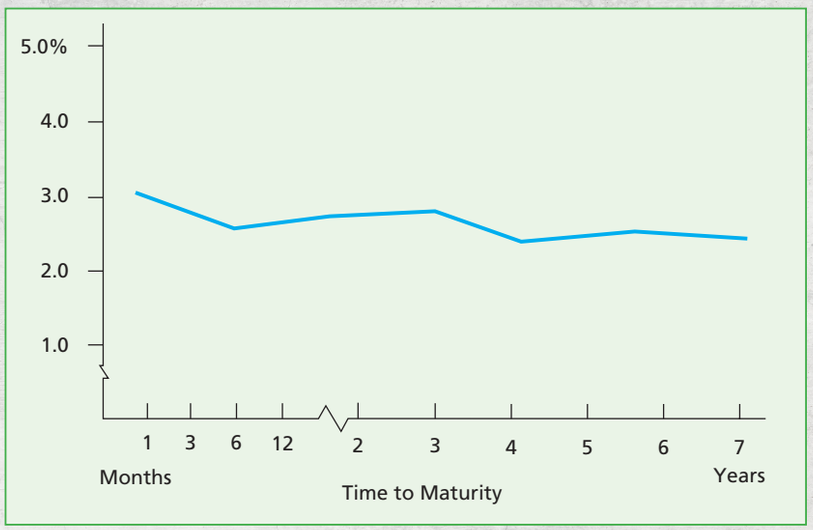
FIGURE 2.6
Example of a Flat Yield Curve



2.1c Financial Markets and the Transfer of Savings

After working and earning income, it is wise to "spend a little, give a little, and save a little." After deciding not to spend and to save, an individual has to make an additional decision: what to do with their savings. Should they put the funds in a bank, like the Saudi National Bank or Riyad Bank, or buy stock or shares in a mutual fund? Rather than letting the funds sit idle, it would be logical to put them to productive use to earn a return.

This process is not limited to individuals. Firms also have savings. Earnings that are not distributed and retained are saved, and management will have to decide what to do with the savings. Perhaps the funds will be used for investments in plant and equipment and other productive assets. Management could also invest the funds in financial assets for short periods of time prior to the acquisition of assets such as plant and equipment. The financial managers of governmental institutions go through the same thought process. Many governments around the world collect tax revenues, but do not necessarily spend the funds immediately. The funds may be placed in short-term investments to earn a return. The same principles apply to nonprofit organizations such as charitable foundations. In each case, the current savings are invested to earn a return. In some cases, nonprofit organizations work directly with financial institutions to invest in activities that support the community. The King Khalid Foundation, for example, has partnered with the Saudi Central Bank to finance social initiatives and promote equal opportunities within the country.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 56 10/12/2024 15:10

When somebody spends their income, the funds are returned to the economy. If people use their income to give to charity, the funds are used to help other people in the society. Savings are not money; they represent a command over resources that the person is not using. How are these funds returned to the economy? The answer revolves around the role of financial markets. Financial markets are the mechanism to transfer these savings to productive uses. The process of transferring savings into investments is a primary, perhaps the most important, function of the financial system. The process of transferring savings into investments leads to the creation of financial claims such as stock and debt instruments such as bonds. These securities are issued to tap the various sources of savings.

Two basic methods exist for transferring funds from savers to users. First is the direct investment. This transfer occurs when you start your own business and invest your savings in the operation. A direct transfer also occurs when securities are initially sold to investors in the "primary" market. Firms and governments issue securities, which may be sold directly to the general public through investment bankers.

Once the securities are created, they may be subsequently bought and sold ("traded"). A second important purpose of financial markets is the creation of markets in existing securities. These "secondary" markets, however, do not transfer funds to the users of funds; they transfer ownership of securities among various investors. Sellers trade their securities for cash, and buyers trade cash for the securities. (Secondary markets are not limited to financial assets. The markets for land or antiques are secondary markets. No new assets are created; there is only the transfer of ownership of an existing asset.) Trading in existing securities through secondary markets such as the Tadawul Saudi Stock Exchange receives substantial coverage in the financial press.

Financial markets have an analogous classification. The "money market" refers to the market for low-risk, large-denomination debt instruments that mature within a year. The "capital market" refers to securities with a longer-term horizon. In the case of a sukuk or bond or mortgage loan, the term may be 10, 20, or more years. In some cases, such as common stock, the time dimension is indefinite. A corporation may exist for centuries. House of Bait Ali Reda Bek organization, for example, was founded in 1845.

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2.2 Financial Intermediaries

Key Terms

Money market mutual fund
Commercial paper
Repurchase agreement (repo)
Banker's acceptances

As has been discussed, one purpose of financial markets is to facilitate the transfer of funds from individuals (and firms and governments) with funds to invest to those individuals (and firms and governments) that need funds. One method is an indirect transfer through a financial intermediary such as a commercial bank. The other method is the direct investment in the firm by the general public. This transfer occurs when an individual starts a business and invests their savings in the operation. But the direct transfer is not limited to investing in one's own business. Firms (and governments) also raise funds by selling securities directly to the general public.

2.2a The Investment Bank

The majority of securities sales are executed through investment bankers. In effect, an investment banker serves as an intermediary that brings together individuals and investment companies with funds to invest and the firms that need financing. If this sale is the first sale of common stock, it is referred to as an initial public offering (IPO).

The firm in need of funds approaches the investment bankers to discuss an underwriting. If the investment bankers guarantee the sale, they make a 'firm commitment' to raise a specified amount of money. In effect, the underwriters buy the securities with the intention to sell them to the general public. By agreeing to buy the securities, the underwriters guarantee the sale and bear the risk associated with the sale.

A syndicate is a group of brokerage houses that join together to underwrite and market a specific sale of securities. The use of a syndicate has several advantages. The syndicate has access to more potential buyers, and using a syndicate reduces the number of securities that each firm must sell, which also increases the probability that the entire issue will be sold.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 58 10/12/2024 15:10



Thus, syndication makes possible both the sale of a large offering and a reduction in the risk borne by each member of the selling group.

If the investment bankers do not want to bear the risk of the sale, they can agree to sell the securities through a best efforts agreement. The investment bankers do not underwrite the sale and do not guarantee that a specified amount of money will be raised. Instead, the investment bankers agree to make their best efforts to sell the securities, but the risk of the sale is borne by the issuing firm. If the securities do not sell, the firm does not receive the funds. While most sales of new securities are by underwriting, small issues of risky securities are often best efforts sales.

Because most sales of new securities are underwritings, the pricing of securities is crucial. If the initial offer price is too high, the syndicate will be unable to sell the securities. When this occurs, the investment bankers have two choices: (1) to maintain the offer price and to hold the securities in inventory until they are sold, or (2) to let the market find a lower price level that will induce investors to purchase the securities. Neither choice benefits the investment bankers.

If the underwriters purchase the securities and hold them in inventory, they must either tie up their own funds, which could be earning a return elsewhere, or borrow funds to pay for the securities. Thus, the decision to support the offer price of the securities prevents the investment bankers from investing their own capital elsewhere or (more likely) requires that they borrow the funds. In either case, the profit margin on the underwriting is decreased, and the investment bankers may even experience a loss on the underwriting.

Instead of supporting the price, the underwriters may choose to let the price of the securities fall. The inventory of unsold securities can then be sold at the lower price. The underwriters will not tie up capital or have to borrow money from their sources of credit. If the underwriters make this choice, they force losses on themselves when they sell the securities at less than cost. But they also cause the customers who bought the securities at the initial offer price to lose. The underwriters certainly do not want to inflict losses on these customers, because the underwriters' market for future new security issues will vanish. Therefore, the investment bankers try not to overprice a new issue of securities, for overpricing will ultimately result in them suffering losses.

There is also an incentive to avoid underpricing new securities. If the issue is underpriced, all the securities will readily be sold, and their price will rise because demand will have exceeded supply. The buyers of the securities will be satisfied, for the price of the securities will have increased as a result of the underpricing. The initial purchasers of the securities reap windfall profits, but these profits are really at the expense of the company whose securities were underpriced. If the underwriters had assigned a higher price to the securities, the company would have raised more capital.

2.2b The Indirect Transfer Through Financial Intermediaries

When new securities are issued, funds are directly transferred from savers to firms. While the ultimate effect is the same, the transfer through financial intermediaries is less direct. The funds are initially lent to the intermediary, and the intermediary subsequently lends the funds to the ultimate users (see Figure 2.7). To obtain the funds, the financial intermediaries create *claims on themselves*. This creation of claims is an important distinction. An investment banker facilitates an initial sale; securities brokers and secondary markets facilitate subsequent sales. Investment bankers, brokers, and securities exchanges do not create claims on themselves. They are not financial intermediaries but rather function as brokers who facilitate the buying and selling of new and existing securities.

When a saver deposits funds in a financial intermediary such as a bank, that individual receives a claim on the bank (the account) and not on the firm (or individual or government) to whom the bank lends the funds. If

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 60 10/12/2024 15:10

the saver had lent the funds directly to the ultimate users and they failed, the saver would sustain a loss. This loss may not occur if the saver lends the money to a financial intermediary. If a financial intermediary makes a bad loan, the saver does not sustain the loss unless the financial intermediary fails. Even then the saver may not sustain a loss if the deposits are insured. The combination of the intermediary's diversified portfolio of loans and the insurance of deposits has made financial intermediaries a primary haven for the savings of many risk-averse investors. Diversification is an important topic in finance.

To tap these savings, a variety of intermediaries has evolved. These include commercial banks, savings and loan associations, mutual savings banks, and insurance companies. Many savers are probably not aware of the differences among these financial intermediaries. They offer similar services and pay virtually the same rate of interest on deposits.

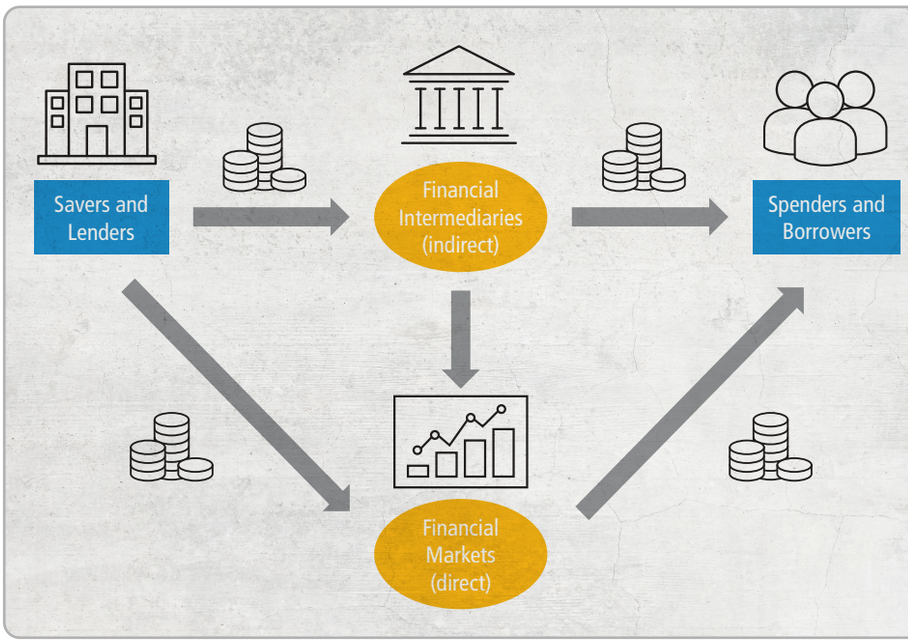

FIGURE 2.7
Direct and Indirect Transfer

2.2c Commercial Banks

In terms of size, commercial banks (such as the Saudi National Bank) are the most important depository institution. A hypothetical example of the total amount of deposits and loans made by commercial banks is given in Figure 2.8. Commercial banks' importance to business is evident, with loans to firms typically accounting for a substantial proportion of commercial banks' total assets. Commercial banks are also a prime source of funds to consumers.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 61 10/12/2024 15:10

Most loans to firms and households are for a relatively short period (for instance, "short term" loans under one year, or "medium term" loans, over one and up to five years to maturity). Commercial banks tend to endorse loans that must be paid off ("mature") quickly. This emphasis on short maturities is the result of the rapid turnover of bank deposits (especially demand deposits) and the need for banks to coordinate their portfolios with changes in the economic environment and the level of interest rates.

The primary liabilities of commercial banks are their deposits: checking accounts (demand deposits) and various types of savings and time deposits. Demand deposits are payable on demand. The owner of a checking account may demand immediate cash, and funds in the account may be readily transferred by check. Typically, across the globe, savings accounts and money market accounts are interest-bearing accounts. Funds deposited in a regular savings account may be withdrawn at will.

The remaining liabilities of the commercial bank include other borrowings from a variety of sources. For example, commercial banks borrow from each other and borrow from the Saudi Central Bank. The last entry on the commercial bank's balance sheet in Figure 2.8 is stockholders' equity, which represents the stockholders' investment in the firm.

FIGURE 2.8

Example of Assets and Liabilities of Commercial Banks (in millions)

Assets	Value in SAR	Percentage (%)
Cash (currency and coins), cash items in process, and deposits with the central bank	2,161.5	13.5%
Government securities	2,442.5	15.3
Other securities	899.5	5.6
Loans		
Commercial and industrial	2,096.9	13.1
Real estate	4,131.4	25.8
Loans to individuals	1,387.7	8.6
Interbank and other loans	62.0	0.4
Other assets	2,833.3	17.7
	16,014.8	100.0%
Liabilities		
Demand deposits and savings accounts	10,109.4	63.1%
Large time deposits	1,498.2	9.4
Other borrowings and liabilities	2,669.0	16.7
Equity (net worth)	1,738.2	10.8
	16,014.8	100.0%

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 62 10/12/2024 15:10

While Figure 2.8 shows the various sources of funds available to commercial banks, it also illustrates that the various types of deposits are typically the most important. Checking and savings accounts and time deposits constitute approximately 60% of the banks' sources of finance. The exhibit also indicates that total deposits greatly exceed stockholders' equity. Commercial banks have a large amount of debt outstanding when it is realized that the deposits are loans to the banks by households, firms, and governments.

2.2d Other Financial Intermediaries

The following sections describe a range of other financial institutions and intermediaries that you may be likely to encounter.

Mutual Savings Banks and Savings & Loan Associations

Mutual savings banks and savings & loan associations (S&Ls) provide a place for savers, especially individuals with modest sums, to deposit funds. The money is then loaned to borrowers in need of the funds. A mutual savings bank is owned by its depositors, but the bank itself is managed by a board of trustees. While a mutual savings bank may view its depositors as owners and not creditors, the owners may readily withdraw their funds. Thus, mutual savings banks must have sufficient liquidity to meet withdrawals.

Savings and loan associations developed primarily as a source of mortgage loans. Today the S&L has evolved into an institution that accepts deposits from anyone and makes a variety of loans. S&Ls, however, continue to place more emphasis on mortgage loans than do commercial banks. To attract deposits, S&Ls tend to pay a rate of interest that is slightly higher than the rates paid by commercial banks.

Insurance Companies

There are many insurance companies operating in Saudi Arabia, including Tawuniya and Al Rajhi Takaful, offering a wide range of insurance services. Some of these services are illustrated in Figure 2.9. Insurance companies can also act as financial intermediaries. Both individuals and organizations make regular payments, which are used as securities against a range of risks in divisions including cars and motor vehicles, home and property, travel, and healthcare. One particular way in which insurance companies might perform the role of a financial intermediary is by receiving the funds of savers, creating a claim on themselves, and then lending the funds to borrowers. The price of the insurance is related to the cost of the product, just as the cost of any service, such as an electrician, is related to the cost of producing the service.

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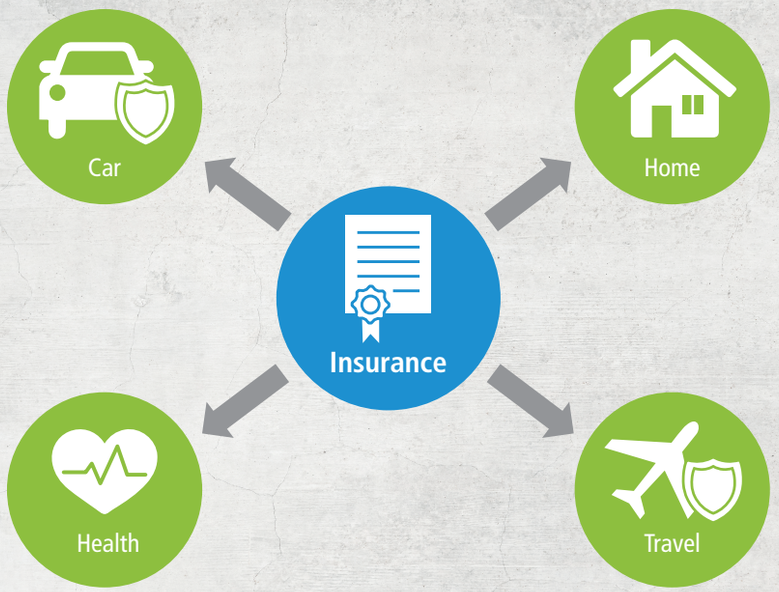
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 63 10/12/2024 15:10

FIGURE 2.9
Some Types of Insurance Available in Saudi Arabia



Pension Plans

In line with the Saudi Vision 2030, a program of reform has been initiated to help improve efficiency of Saudi Arabia's pension administration, which includes a merger of GOSI (the General Organization for Social Insurance) and the Public Pension Agency. This is one of several measures being enacted across government organizations to reinforce Saudi Arabia's infrastructure for a successful and prosperous future. While the specific pension arrangements vary from country to country, according to a range of factors, the essential role of a pension plan is to accumulate assets for workers so that they will have funds for retirement. Funds are periodically put in the pension plan by the saver, the employer, or both. The money deposited with the fund then is used to purchase income-earning assets. The saver's funds grow over time as additional contributions are paid into the pension plan, and the funds already in the plan earn income and appreciate in value.

Many pension plans exist, but few of them really perform the function of financial intermediaries. Many pension plans do not invest or lend the money directly to borrowers. Instead they may purchase *existing* securities, such as the stock of an oil company, for example; that is, the pension plan participates in the secondary, not the primary, market for securities. For a pension plan to serve as a financial intermediary, it must pass the funds directly to a borrower or invest them directly in a firm.

وزارة التعليم
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 64 10/12/2024 15:10

2.2e Money Market Mutual Funds and Money Market Instruments

One of the most important financial institutions found around the world is the mutual fund that invests on behalf of individuals (see Figure 2.10). However, most of these funds are not financial intermediaries in the sense that they borrow from savers and lend the funds to the ultimate users. It is true that they do create claims on themselves, since investors own shares in the funds (in other words, the investors own equity claims). Whether the fund is a financial intermediary depends on what it does with the money raised by selling the shares: Does it acquire newly issued securities or buy previously issued securities?



FIGURE 2.10
Money Market Mutual Funds

Mutual funds that invest on behalf of individuals are one of the most important financial institutions in the world

If the fund buys securities in the secondary markets, it is not serving as a financial intermediary. No money is transferred to a firm, government, or individual seeking to borrow funds. Instead, the money is transferred to another investor who is seeking to liquidate a position in the particular security.

Of course, a mutual fund could buy newly issued securities. Some funds specialize in purchasing shares of emerging and new firms, and to the extent that these funds participate in the primary market, they are operating as financial intermediaries. Other mutual funds specialize in government securities, which may be purchased when the bonds are issued. Such funds also serve as financial intermediaries, transferring the money of savers to the ultimate users of the money. Most mutual funds, however, do not serve as financial intermediaries, as they primarily buy and sell existing securities.

Money market mutual fund
An investment company that invests solely in short-term money market instruments

Even though most mutual funds are not financial intermediaries, there is one major exception—the **money market mutual fund** that acquires short-term securities. While these are secondary markets in some money market instruments, money market mutual funds tend to acquire newly issued short-term debt instruments. These securities are then held until they are redeemed at maturity, at which time the process is repeated.

The worldwide development of these funds and their explosive growth was one of the most important developments in the financial markets. This immediate popularity may be explained by three factors: safety of principal, liquidity, and interest rates that exceed the rates paid by banks. The shares are safe since the money funds acquire short-term debt obligations whose values are subject to minimal price fluctuations. In addition, these debt obligations tend to have high credit ratings, so there is minimal risk of default. Individuals may withdraw money invested in the money funds (that is, redeem shares) at will. This ease of converting to cash with minimal chance of loss means these shares are among the most liquid assets available to savers.

The money funds invest in a variety of short-term securities. Other money market instruments, which can vary from country to country, include the short-term debt of the government (Treasury bills), commercial paper issued by corporations, repurchase agreements (commonly referred to as repos), and banker's acceptances. Of course, the individual investor may also directly acquire these securities, but the large denomination of some short-term securities excludes most investors.

Commercial paper
Unsecured short-term promissory notes issued by the most creditworthy corporations

Commercial paper is an unsecured short-term note issued by a corporation as an alternative to borrowing funds from commercial banks. Since the paper is usually unsecured, only firms with excellent credit ratings are able to sell it; hence, the risk of default is small, and the repayment of principal is virtually assured.

Repurchase agreement (repo)
The sale of a short-term security in which the seller agrees to buy back the security at a specified price at a specified date

A **repurchase agreement (repo)** is a sale of a security in which the seller agrees to buy back (repurchase) the security at a specified price at a specified date. Repos are usually executed using government securities, and the repurchase price is higher than the initial sale price. The difference between the initial sale price and the repurchase price is the source of the return to the holder of the security. By entering into the repurchase agreement, the investor (the buyer) knows exactly how much will be made on the investment and when the funds will be returned.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 66 10/12/2024 15:10

Banker's acceptances are short-term promissory notes guaranteed by a bank. These acceptances arise through international trade. Suppose a firm ships goods abroad and receives a draft that promises payment after two months. If the firm does not want to wait for payment, it can take the draft to a commercial bank for acceptance. Once the bank accepts the draft (and stamps it "accepted"), the draft may be sold. The buyer purchases the draft for a discount, which becomes the source of the return to the holder. Bankers' acceptances are considered to be good short-term investments because they are supported by two parties: the firm on which the draft is drawn and the bank that accepts the draft.

Banker's acceptances
Short-term promissory notes for payment guaranteed by a bank

Although the money funds as a whole own a wide spectrum of money market instruments, some of the funds do specialize.

2.2f Competition for Funds

A commercial bank or any financial intermediary can lend only what has been lent to it. Unless the bank is able to induce individuals, firms, and governments to make deposits, that bank will be unable to grant loans and make investments. This general statement holds for all financial intermediaries. None can make investments without a source of funds. Whether these claims on the intermediaries are called insurance policies or savings accounts or shares in money market mutual funds, the essential point remains the same. No financial intermediary can exist without its sources of funds.

Conversely, if funds flow out of financial intermediaries, all intermediaries will be able to hold fewer assets (that is, make fewer loans). Unless the outflow is reversed, it will tend to increase the cost of credit as the intermediaries raise the rates of interest they charge in order to ration their remaining lending capacity.

In addition to the aggregate flows into and out of all financial intermediaries, credit markets may feel the impact of flows among financial intermediaries. Funds deposited in one particular bank are not deposited in another competitive bank. If an individual saver has funds to invest and chooses a money market mutual fund instead of the local savings and loan association, it is the mutual fund that can lend the funds and not the savings and loan association.



Why is the source of funds important to every financial intermediary?

From the standpoint of the borrowers, it would not matter which intermediary makes the loans if all financial intermediaries had similar portfolios. But the portfolios of various financial intermediaries do vary.

These differences can have an important implication. A transfer of funds from one intermediary (for example, a savings and loan association) to another (such as a money market mutual fund) can have an important impact on the supply of credit available to a particular sector of the economy. Although the total supply of credit is unaffected (because the money market fund can lend only what the savings and loan association loses), there will be a redistribution of credit from those who borrow from savings and loan associations to those who borrow from the money funds. The money market mutual fund now has more funds to acquire short-term securities. Simultaneously, the flow of funds out of the savings and loan association reduces its capacity to grant mortgage loans. Such a redistribution of funds from savings and loan associations to money market mutual funds can be felt by the construction industry and home buyers as the supply of mortgage money declines.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 68 10/12/2024 15:10

As this discussion implies, financial intermediaries compete with each other for funds. This competition occurs through yields and services offered. If a particular intermediary did not offer competitive rates, funds would flow from it to those intermediaries offering higher yields. Thus, differentiation among the intermediaries on the basis of yields tends to be small.

Historically, across the world, financial intermediaries have been categorized on the basis of services or products offered. Today, however, this is only partially true. In the past, savers bought insurance through insurance agents, bought stocks through securities brokers, and invested funds in a savings account in a bank. Those days of specialization are disappearing. Insurance agents, stockbrokers, and bankers today offer a wide spectrum of services and financial products. For example, many commercial banks offer savers not only the traditional services of savings and checking accounts but other products as well, such as brokerage services (to compete with stockbrokers), money market accounts (to compete with money market mutual funds), and pension plans (to compete with insurance companies and mutual funds). Such product competition also applies to savings banks. Savings and loan associations offer a variety of savings accounts as well as checking accounts, insurance, and brokerage services.

Exercises

Choose the correct answer.

1. The first sale of common stock for a company is referred to as an initial public offering (IPO).

True / False

2. Financial intermediaries, such as commercial banks, insurance companies, and stock brokerages do not compete against each other's services.

True / False

3. A sale of a security in which the seller agrees to buy back (repurchase) the security at a specified price at a specified date is a:

a. commercial paper.
b. banker's acceptance.
c. repurchase agreement.
d. mutual fund.

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2.3 Regulation of Financial Institutions

Key Terms

Required reserves
Excess reserves
Correspondent bank
Secondary reserves

Commercial banks and other savings banks are subject to government regulation, whose purpose is to protect the banks' creditors, especially their depositors. The very nature of banking implies that when a commercial bank fails, substantial losses could be sustained by the bank's depositors. This is exactly what occurred during the Great Depression of the 1930s, which originated in the United States, when the failure of many commercial banks imposed substantial losses on depositors. These losses led to increased regulation of commercial banks and the establishment of deposit insurance, both of which are designed to protect depositors. Such protection promotes a viable banking system and eases the flow of savings into investment.

In Saudi Arabia, both commercial and development banks are regulated by the Saudi Central Bank (SAMA), which was established in 1952 under the name Saudi Arabian Monetary Authority, and was renamed the Saudi Central Bank in 2020. SAMA fulfills a range of important functions such as regulating and supervising the financial sectors and banking operations, issuing currency, and managing the country's monetary policy.

2.3a Reserves

Required reserves
Funds that banks must hold against their deposit liabilities

Commercial banks and all other depository institutions (savings and loan associations, mutual savings banks, and credit unions) must keep funds in reserve against their deposit liabilities (that is, **required reserves**). The minimum amount that all banks must maintain as a reserve is determined by the Saudi Central Bank (SAMA). While holding reserves against deposit liabilities may increase the safety of the deposits, such safety is not the prime reason for having reserve requirements. The reserve requirement is one of the tools of monetary control. This element of control, not safety, is the reason for having a reserve requirement against the deposit liabilities of banks.

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Ministry of Education
2026 - 1448

The amount of the reserve requirement varies with the type of account. For example, according to the Saudi Central Bank, the reserve requirement on saving deposits is 4% (as of May 2008), and the reserve requirement on demand deposits is 7% (as of November 2008).

Commercial banks may hold their reserves in two forms: (1) cash in the vault or (2) deposits with another bank, especially the Saudi Central Bank. If the bank's reserve requirement is 7% for demand deposits and the bank receives SAR 100 cash in a checking account, it must hold SAR 7 in reserve against the new demand deposit. The entire SAR 100 in cash is considered part of the bank's total reserves, but the bank must hold only SAR 7 against the deposit liability. The bank may choose to hold a small proportion of the required reserves in cash in the vault (to meet cash withdrawals) and the remainder in the Saudi Central Bank. The remaining SAR 93 are funds that the bank does not have to hold in reserve. In this example, these **excess reserves** (the difference between the bank's total reserves and its required reserves) total SAR 100 – SAR 7 = SAR 93. A commercial bank's excess reserves may be lent to borrowers or used for some other purpose, such as purchasing government securities. If a commercial bank does not have any excess reserves, it is said to be "fully loaned up." To acquire additional income-earning assets, such as a government security or a business loan, the bank would have to acquire additional excess reserves.

Excess reserves
The amount of funds a bank holds in addition to the amount of funds it is required to hold

Commercial banks (and other depository institutions) may deposit their reserves in the Saudi Central Bank, or they may deposit their reserves in other banks called **correspondent banks**. Correspondent banks in many cases are large, metropolitan commercial banks, such as Saudi National Bank, which fulfills this role for over 900 banks across the globe. These large correspondent banks frequently provide additional services. For example, they have efficient mechanisms for clearing checks that facilitate check clearing for smaller banks. The correspondent banks also have research staffs and give management advice and investment counsel. Thus, they are important to the well-being of the small, local banks. Of course, the correspondent banks are willing to provide these services because a small bank's deposits are like any other deposits: they are a source of funds that the larger banks may use. The large commercial banks use the funds deposited in them by small banks to purchase income-earning assets.

Correspondent bank
A financial institution which performs services for one or more other financial institutions and often serves as a point of liaison between domestic and international financial institutions

Secondary reserves
Short-term securities held by banks to increase their liquidity

In addition to the required reserves, commercial banks also hold **secondary reserves**. These are high-quality, short-term marketable securities such as government securities that may be readily sold. Thus, short-term marketable securities offer a bank both a source of interest income and a means to obtain funds quickly to cover a shortage in its reserves.

The importance of reserves and reserve requirements cannot be exaggerated. The commercial banking system, through the process of loan creation, can expand or contract a nation's supply of money. The ability of commercial banks and other depository institutions to lend depends on their excess reserves. Thus, anything that affects their reserves alters their ability to lend and create money and credit. Many financial transactions affect commercial banks' reserves, including the government's methods of financing a deficit or the operations of the Saudi Central Bank.

While commercial banks are required to have sufficient reserves necessary to fulfill their obligations, central banks of individual countries also hold national reserves. Figure 2.11 lists the Saudi Central Bank's official reserves assets in March 2022.

FIGURE 2.11
The Saudi Central Bank's official reserves assets in March 2022 (in million Riyal)

SDDS Data Category and Component	March 22 (in million riyal)
Official Reserves Assets	1,692,599
Monetary Gold	1,624
SDRs (Special Drawing Rights)	79,946
IMF (International Monetary Fund) Reserve Position	14,348
Foreign Currency Reserves	1,596,682
Other Reserve Assets	0

Source: Saudi Central Bank, **https://www.sama.gov.sa/en-US/Indices/Pages/reserve_assets.aspx** (published 5/5/2022)

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 72 10/12/2024 15:10

Exercises

Choose the correct answer.

1. Funds kept in reserve against a commercial bank's deposit liabilities are called required reserves.

True / False

2. A commercial bank is not allowed to use excess reserves to lend to borrowers.

True / False

3. In Saudi Arabia, both commercial and development banks are regulated by the:

a. Saudi Central Bank.
b. Public Investment Fund.
c. Saudi Commercial Bank Management Association.
d. Ministry of Finance.

Chapter 2 Assessment

SUMMARY

The core components of the financial system are financial markets, financial intermediaries, and regulators. Financial markets transfer savings by individuals, firms, and governments into productive investments. This transfer occurs directly when new securities are issued or indirectly through financial intermediaries. Financial markets also transfer existing securities among investors.

Money is anything that is generally acceptable to pay for goods and services and to retire debt. Liquidity refers to the ease of converting nonmonetary assets into money. The narrow definition of the money supply (M-1) is the sum of coins, currency, and demand deposits. A broader definition (M-2) adds saving accounts and small certificates of deposit to M-1.

In many locations and markets around the world, interest rates help allocate scarce credit among competing uses for the funds. The structure of yields relates the interest rate to the length of time that the debt will be outstanding. The structure of yields is often summarized by a yield curve. Generally the yield curve is positively sloped, which indicates that the longer the borrower has the use of the funds, the greater is the cost of funds. However, there have been periods in some markets when the yield curve was negative and short-term rates exceeded long-term rates. There have also been periods in some markets when the yield curve was flat; short-term and long-term rates were equal; and there was no differentiation between the cost of short-term and long-term funds.

Funds are transferred from savers to borrowers through a system of financial intermediaries. The intermediaries borrow from savers and then lend the funds to their ultimate users. Financial intermediaries include commercial banks, mutual savings banks and savings & loan associations, insurance companies, pension plans, and money market mutual funds. All financial intermediaries compete for funds, since an individual intermediary can acquire a portfolio of assets only if it can obtain funds.

In terms of size, commercial banks are the most important financial intermediary. These banks make a variety of loans but tend to stress loans that are quickly repaid. Other financial intermediaries, such as savings and loan associations and insurance companies, make longer-term loans.

Recent developments in financial intermediaries include the large growth in money market mutual funds. Money market mutual funds compete directly with banks; they offer the advantages of somewhat higher yields and almost comparable safety. While the shares are not protected as are the deposits in banks, the short-term nature of their portfolios affords the saver safety of principal.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 74 10/12/2024 15:10

Money market mutual funds own a variety of short-term debt securities issued by corporations (commercial paper), commercial banks, and governments. Government short-term debt obligations include Treasury bills. Other short-term money market instruments include repurchase agreements and banker's acceptances. Each of these securities is a means for the issuer to raise short-term funds, and each is a place for investors, especially money market mutual funds, to commit funds for a short period of time.

QUESTIONS

1. Explain what is meant by liquidity in finance, drawing upon examples to illustrate the concept.

2. Describe the difference between M-1 and M-2 in relation to measures of money supply.

3. Explain why money is crucial to an advanced economy.

4. Describe what a syndicate is in relation to investment banking and explain its advantages.

5. Explain what a money market mutual fund is and briefly describe its function.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 75 10/12/2024 15:10

ASSESSMENT QUESTIONS

Choose the correct answer.

1. Individuals are able to invest indirectly in a variety of short-term securities through purchasing:

a. stocks.
c. bonds.
b. mutual funds.
d. debt.

2. In Saudi Arabia, the supply of money is controlled by the:

a. Ministry of Finance.
c. Saudi Central Bank.
b. Public Investment Fund.
d. Saudi National Bank.

3. _____ _____ play a role in the allocation of scarce credit among competing uses for the funds.

a. Finance rates
c. Central banks
b. Interest rates
d. Customer demands

4. A mutual savings bank is owned by:

a. a commercial bank.
c. a board of trustees.
b. its depositors.
d. the government.

5. The Saudi Vision 2030 has a program to help improve efficiency of Saudi Arabia's pension administration.

True / False

6. A correspondent bank may help smaller banks by:

a. facilitating check clearing.
c. giving investment counsel.
b. giving management advice.
d. Correspondent banks can provide all these things.

7. A commercial bank will have required reserves but can hold secondary reserves.

True / False

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 76 10/12/2024 15:10

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your Choice	Definition
1. Banker's acceptances		**a.** The amount of funds a bank holds in addition to the amount of funds it is required to hold
2. Banknote		**b.** Unsecured short-term promissory note issued by the most creditworthy corporations
3. Commercial paper		**c.** The amount of money in circulation in the form of coins, currency, demand deposits savings accounts, and small certificates of deposit
4. Correspondent bank		**d.** Funds that banks must hold against their deposit liabilities
5. Excess reserves		**e.** The sale of a short-term security in which the seller agrees to buy back the security at a specified price at a specified date
6. Liquidity		**f.** Short-term promissory notes for payment guaranteed by a bank
7. M-1		**g.** The ease of converting an asset into cash without loss
8. M-2		**h.** Anything that is generally accepted as a means of payment
9. Money		**i.** The relationship between yields and the time to maturity for debt with a given level of risk
10. Money market mutual fund		**j.** A form of paper money in which the government of issue's central bank promises to pay the bearer the sum of its stated value
11. Money supply		**k.** The total amount of currency in circulation
12. Required reserves		**l.** A graph relating interest rates and the term to maturity
13. Repurchase agreement (repo)		**m.** Short-term securities held by banks to increase their liquidity
14. Secondary reserves		**n.** A financial institution which performs services for one or more other financial institutions and often serves as a point of liaison between domestic and international financial institutions
15. Term structure of interest rates		**o.** An investment company that invests solely in short-term money market instruments
16. Yield curve		**p.** The amount of money in circulation in the form of coins, currency, and demand deposits

MINI CASE 2.1

Investment For Starting a New Business

Saudi Vision 2030 has introduced many initiatives to support SMEs (small and medium enterprises), encouraging entrepreneurs to start new businesses. Rasheed has decided to set up his own smart-tech company but needs funds in order to build prototypes of his products. He thinks that some financial institutions might offer him a loan. However, he has also heard that funds can be raised through investors instead. Rasheed is unsure which is the best funding option for his business so he decides to carry out some research.

Task

1. Describe some of the typical financial institutions that offer loans to entrepreneurs like Rasheed.

2. List some of the advantages and disadvantages of taking out a loan compared with raising capital through investors.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 78 10/12/2024 15:10

MINI CASE 2.2

Financial Intermediaries for Investors

Nora was never particularly interested in investing in shares until she heard about the record-breaking IPO (initial public offering) of Saudi Aramco in 2019. Now she is keen to invest some money that she has inherited. However, she has never invested in a business before and doesn't know where to start. Nora's brother has heard about an amazing investment opportunity, while her sister suggests she should spread her investment across several companies. Nora is unsure what to do, and decides to carry out some research to find out more about the opportunities available.

Task

1. Where would Nora find information about shares that are currently available to buy, and details of the companies?

2. Through which institution would she need to buy the shares?

Business Finance reprint_1p.indb 79 10/12/2024 15:10

CASE STUDY: THE SAUDI EXCHANGE'S ROLE IN SUPPORTING SAUDI VISION 2030

Many of the world's major or capital cities have a stock exchange, typically located in a grand building in the heart of the financial district. The stock exchange is one of the key institutions underpinning business across the globe. It is where company stocks and other securities are listed, bought, and sold—a hub connecting potential investors with businesses that require investment. These businesses raise capital by selling a stake (shares) in the company. In return, investors can profit with the rise in value of those shares (though, equally, they can make a loss if the share price falls).

The Saudi Exchange (often referred to as the Tadawul) is headquartered in Riyadh and is owned by the Saudi Tadawul Group. The Saudi Exchange is ranked 13th in the world by market capitalization (as of 2021), 9th largest of the World Federation of Exchanges (WFE), and is the largest stock exchange in the Middle East. It is regulated by the internationally-recognized body, the Capital Market Authority (CMA), and is an affiliate member of the Arab Federation of Exchanges.

Stock market activity is often regarded as an important indicator of an economy's health. Financial experts keep a close eye on the markets to anticipate change. As well as its key function connecting buyers and sellers, the Saudi Exchange provides a range of supporting financial services and online tools to assist investors. A daily summary provides headline information at aglance on the 'top gainers', 'top losers', 'movers by volume', and 'movers by value'. Saudi Exchange also offers a 'Trading Simulator' for practicing virtual trading in asimulated environment without the associated risk of using real money.

As a key financial institution, the Saudi Exchange commands a position of influence in the sector, playing a broader advisory role in financial policy and economic developments in Saudi Arabia. A recent example is its role in the formation of the Shariah Advisory Committee in April 2022. Given its national importance, it is perhaps unsurprising that the Saudi Exchange is central to the Saudi Vision 2030 plans. In line with the Financial Sector Development Program, the exchange is assisting and facilitating the privatization of businesses, and hence the growth of the private sector, encouraging "Saudi and GCC private companies to list."

According to Saudi Vision 2030: "We will continue facilitating access to investing and trading in the stock markets. We will smooth the process of listing private Saudi companies and state-owned enterprises, including Aramco. This will require deepening liquidity in our capital markets, fortifying the role of the debt market, and paving the way for the derivatives market." Another tool in supporting the private sector is the Saudi Parallel Market (Nomu), a separate market with less stringent listing requirements, which according to the official website, promotes "increased diversification and deepening the Saudi capital market."

Saudi Exchange's official vision statement is: "Shaping what comes next in capital market development in Saudi Arabia, …supported by a strong,

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 80 10/12/2024 15:10

innovative, and technologically advanced market infrastructure." According to Saudi Exchange's official website, it hopes to achieve these aims by: "Providing markets that are reliable, resilient, transparent, and efficient. Protecting market participants and offering tailored services that are attractive to domestic and international stakeholders."

Study Questions

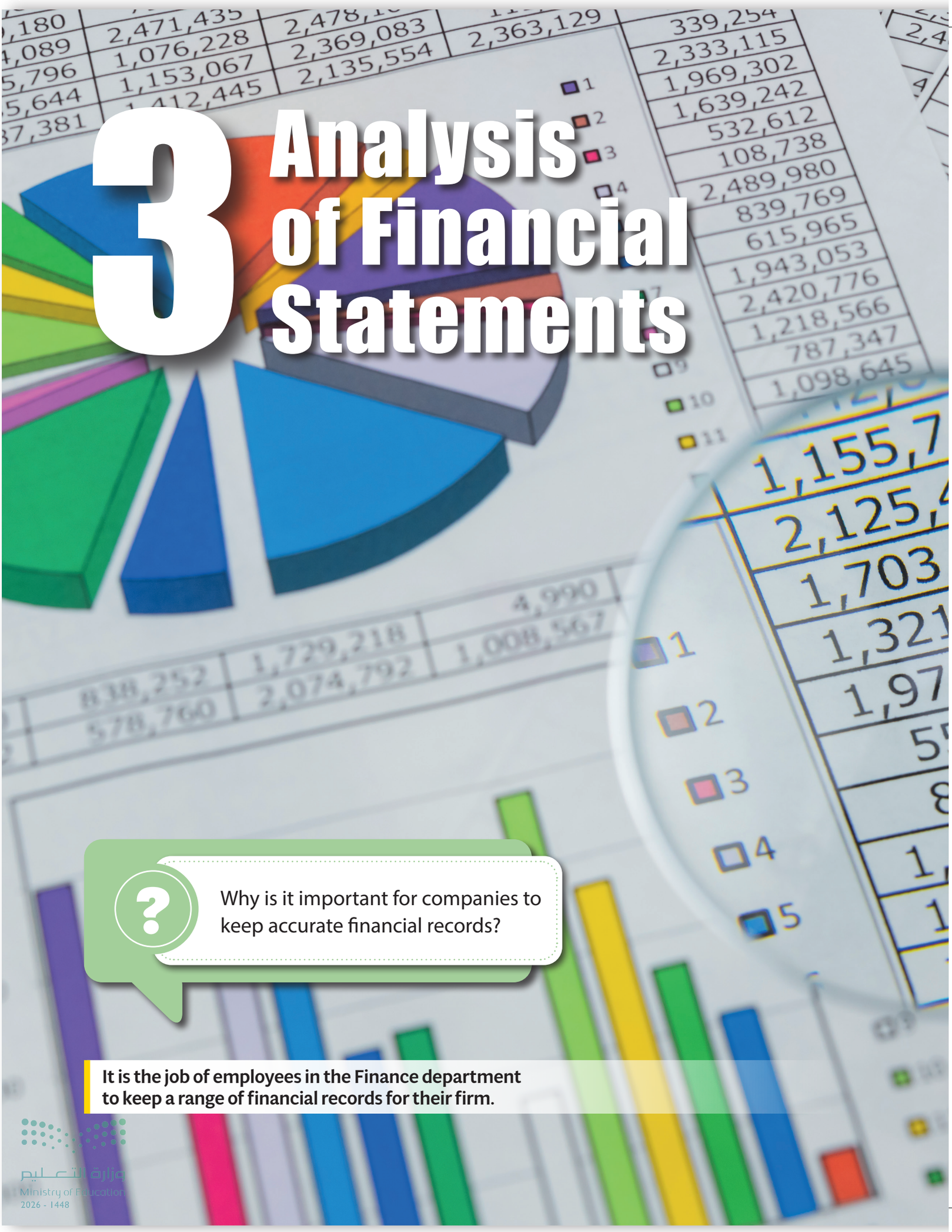
1. What is the function of a stock exchange?

2. Explain some ways in which the Saudi Exchange is playing a vital role in helping to facilitate Saudi Vision 2030.

Online Activity

Visit the Saudi Exchange webpage (www.saudiexchange.sa) and search a company that is listed on the exchange. Find out details about that company. Assuming that you were of legal age and had the necessary funds for investment, would you choose to invest in this company, based on the information available? Give reasons for your answer.

Business Finance reprint_1p.indb 81 10/12/2024 15:10



3 Analysis of Financial Statements

Why is it important for companies to keep accurate financial records?

It is the job of employees in the Finance department to keep a range of financial records for their firm.

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2026 - 1448



LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Understand the basic principles of financial statements: what they are, who uses them, and the information they convey.
2. Recognize and understand the different components of commonly-used financial statements.
3. Understand how financial statements are constructed.
4. Understand the basic analyses that underlie common financial statements.
5. Recognize the limitations inherent in financial reporting.

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2026 - 1448

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Every day, companies are working to offer goods and services to their markets and make a profit for themselves in the process. How can you tell if a company is doing well, making a profit, or in financial difficulty? To help managers, accountants, bankers, analysts, regulators, and investors understand a firm's situation, financial statements are regularly prepared. A financial statement is a formal record of the financial and operating activities of a business or other entity. Financial statements are used to convey information about the business activities and financial status of the firm they are prepared for. These statements have been designed to present their data in a structured manner and in a format that is easy to understand (once you are familiar with how they are constructed).

Just as all companies differ in terms of their performance and financial health, the data presented in each financial statement will vary from company to company. The goal of these documents is to provide an objective insight into the organization. They are also used to monitor a company's performance over time, understand how a company is progressing toward key strategic initiatives, and to compare its performance to other companies in the same industry.

Financial statements are regularly audited by government agencies, accountants, banks, and others, to ensure accuracy and for tax, financing, or investing purposes. Financial statement analysis is the process of reviewing a company's financial documents to make an informed decision about that business. For example, a company that is seeking financing from a bank will submit its financial statements as part of its loan application. The bank will analyze the statements to determine the creditworthiness of the firm.

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3.1 General Accounting Principles

Accounting statements provide financial information concerning an enterprise. Although the emphasis in this text is their application to firms, financial statements may be constructed for governments (such as the Kingdom of Saudi Arabia), nonprofit organizations (such as the MiSK Foundation), or individuals. In all cases these statements show the financial condition of the entity and its assets and how they were financed. This information can then be used to aid financial decision making.

To be useful in decision making, financial statements must be *reliable*, *understandable*, *and comparable*. Reliability requires the statements to be objective and unbiased. The data included on the statements should be verifiable by independent experts. This does not mean that two accountants working with the same information will construct identical financial statements. Individual opinions and judgments may lead to different financial statements. An example that involves the accountant's judgment is the allowance for doubtful accounts receivable. Two accountants may establish differing amounts that will affect the firm's financial statements. A larger allowance reduces accounts receivable (and total assets) and decreases earnings. However, it should not be concluded that two accountants will construct widely different statements. While the financial statements may differ, the amount of differentiation should be modest.

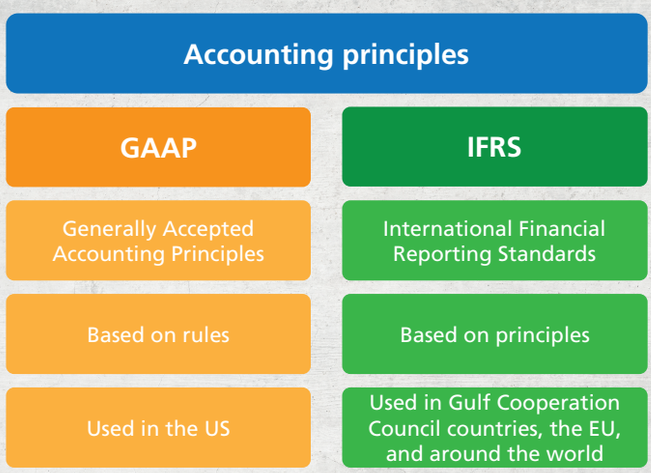
Financial statements should be presented in an orderly manner and be readable by informed laypersons as well as professionals. Investors and other individuals who use financial statements need not know all the principles used to construct a financial statement. However, an intelligent individual should be able to read a firm's financial statements and have some idea of the firm's profitability, its assets and liabilities, and its cash flow.

Comparability requires that one set of financial statements can be compared to the same financial statements constructed over different accounting periods. The principles used to construct one year's statements should be used for subsequent years. If the principles being applied are changed, the previous years' statements should be restated. If the firm's operations change, the financial statements should also reflect these changes. If, for example, the firm discontinues part of its operations, its sales, expenses, and profits for previous years should be restated. If this

adjustment is not made, the users of the financial statements will be unable to compare the firm's financial performance over a period of time for its continuing operations.

To better understand the information found within financial statements, you need to know the underlying frameworks that inform an organization's accounting practices. The two primary accounting standards you should be familiar with are Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS), as illustrated in Figure 3.1.

FIGURE 3.1
Comparison of the Recognized Accounting Principles



GAAP and IFRS share several similarities, but differ in key ways—particularly in how components of the balance sheet, cash flow statement, asset revaluation, and inventory valuation methods are treated. By understanding how these reports are constructed, and what potential differences might exist, you will be able to determine when each is appropriate to use.

The Saudi Central Bank (SAMA) and Saudi Organization for Certified Public Accountants (SOCPA) require all Saudi companies to follow the framework of the IFRS. The principles of financial accounting, however, are not static. Their conceptual framework changes with the passage of time with changes in the business environment and the needs of the statements' users. For example, worldwide increases in foreign investments and fluctuations in the value of foreign currencies have generated a need for better methods of accounting for these foreign investments. This challenge plus others such as inflation, pension liabilities,

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 86 10/12/2024 15:10

and stock options have resulted in changes in international accounting principles as the profession seeks to improve the informational content of financial statements.

Exercises

Choose the correct answer.

1. To be useful in decision making, financial statements must be reliable, understandable, and comparable.

True / False

2. The primary accounting standards used in Gulf Cooperation Council countries, the EU, and around the world is:

a. Generally Accepted Accounting Principles (GAAP).
b. International Financial Reporting Standards (IFRS).
c. Internationally Accepted Accounting Principles (IAAP).
d. CPA Accounting Standards (CAS).

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3.2 The Balance Sheet

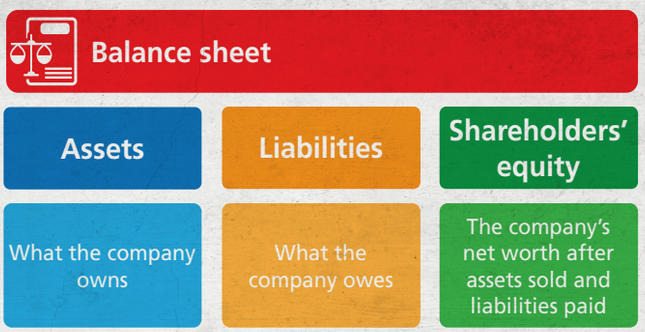
Key Terms

Balance sheet
Assets
Liabilities
Shareholders' equity
Current assets
Long-term assets
Inventory
Accounts receivable
Depreciation
Current liability
Long-term liability

Balance sheet
Financial statement that enumerates (as of a point in time) what an economic unit owns and owes and its net worth

An executive manager at a company wants to always be aware of the financial situation of their company. One popular financial statement that communicates this is known as a **balance sheet**. A balance sheet is designed to communicate the current value of a company. It's a simple accounting of all of the company's assets, liabilities, and shareholders' equity, and offers analysts a quick view of how a company is performing and expects to perform (see Figure 3.2).

FIGURE 3.2
The Three Key Components of a Balance Sheet



Most balance sheets follow this basic formula: assets = liabilities + shareholders' equity. In fact, this formula is at the heart of almost all accounting (see Figure 3.3).

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 88 10/12/2024 15:10



FIGURE 3.3
The Balance Sheet Equation

An **asset** is anything the company owns which has a quantifiable value. This may include physical property (for example, vehicles, real estate, and unsold inventory), as well as intangible items (for example, patents and trademarks). **Liabilities** are things the company owes to someone else. Liabilities may include outstanding payroll expenses, debt payments, rent and utility payments, money owed to suppliers, taxes, and bond payments. Assets and liabilities are described in Figure 3.4. **Shareholders' equity** is a term that refers to the net worth of a company. It reflects the amount of money that would be left if all the firm's assets were sold and all the liabilities paid. This equity belongs to the company's shareholders, whether they are a private owner or public investors.

Assets
Items or property owned by a firm, household, or government and valued in monetary terms

Liabilities
What an economic unit owes expressed in monetary terms

Shareholders' equity
A firm's net worth; the amount of money that individuals have invested in the firm; the sum of stock, paid-in capital, and retained earnings

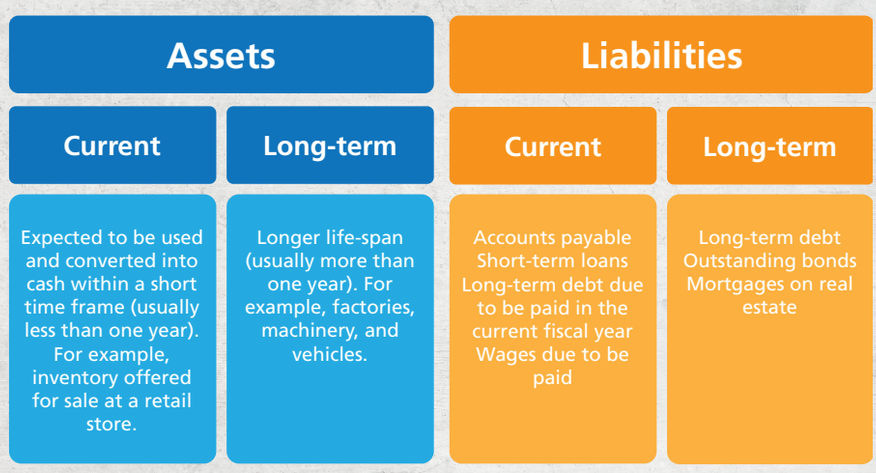

FIGURE 3.4
Assets and Liabilities

Current assets

Short-term assets that are expected to be converted into cash during the fiscal year

Long-term assets

Assets that are expected to be held for more than a year, such as plant and equipment

Figure 3.5 presents a simplified balance sheet for Daana's Delights. This balance sheet (and the other financial statements presented later in this chapter) is published in the firm's annual report. The assets are divided into three groups: (1) **current assets**, which are expected to be used and converted into cash within a relatively short period of time; (2) **long-term assets**, which are those assets with a life span exceeding a year; and (3) other assets, such as investments in other firms' stocks. The liabilities and shareholders' equity are presented next, frequently on the right-hand side of the balance sheet across from the assets. Although it is not necessary for a balance sheet to be arranged in this manner, many firms use this general form which clearly enumerates the assets, liabilities, and equity of the firm.

Daana's Delights had overall long-term and current liabilities of SAR 8,330,000 and equity of SAR 1,324,000 in 20X1. As noted, the sum of the liabilities and equity must equal the sum of the assets, for it is the liabilities and equity that finance the acquisition of the assets. The assets could not have been acquired if creditors and owners had not provided the funds needed to acquire them. In this example, the balance sheet indicates that liabilities finance 86.3% and that equity finances 13.7% (SAR 1,324,000/SAR 9,654,000) of the total assets. Thus, the balance sheet indicates the proportion of the assets financed with liabilities and the proportion financed with equity.

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2026 - 1448

Balance Sheet	20X1	20X0
Current Assets		
Cash and cash equivalents	373,000	618,000
Receivables	1,172,000	1,160,000
Inventory	1,235,000	1,380,000
Prepaid expenses	125,000	140,000
Other current assets	37,000	28,000
Total current assets	**SAR 2,942,000**	**SAR 3,326,000**
Long-term Assets		
Land (not depreciated)	77,000	56,000
Buildings	775,000	843,000
Equipment	3,250,000	3,500,000
Less accumulated depreciation	–2,130,000	–2,295,000
Total property, plant, and equipment	**1,972,000**	**2,104,000**
Other long-term assets	4,740,000	4,135,000
Total assets	**SAR 9,654,000**	**SAR 9,565,000**
Liabilities and Shareholders' Equity Current Liabilities		
Short-term debt	61,000	124,000
Accounts payable	1,130,000	1,248,000
Accrued salaries and wages	325,000	390,000
Other accrued liabilities	485,000	488,000
Income taxes	74,000	91,000
Total current liabilities	**SAR 2,075,000**	**SAR 2,341,000**
Long-term Liabilities		
Long-term debt	5,200,000	4,830,000
Deferred taxes	360,000	410,000
Other long-term liabilities	695,000	867,000
Total long-term liabilities	**SAR 6,255,000**	**SAR 6,107,000**
Shareholders' Equity		
Share capital	125,000	125,000
Statutory reserve	57,500	57,500
Retained earnings	1,141,500	934,500
Total shareholders' equity	**1,324,000**	**1,117,000**
Total liabilities and shareholders' equity	**SAR 9,654,000**	**SAR 9,565,000**

FIGURE 3.5
Daana's Delights
Balance Sheet

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2026 - 1448

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Two additional points need to be made about balance sheets:

- First, a balance sheet is constructed at the end of a fiscal period (for example, a year). It indicates the value of the assets and liabilities and the net worth at that particular time. Since financial transactions occur continuously, the information contained in a balance sheet may become outdated rapidly.
- Second, the values assigned to the assets need not mirror their market value. Instead, the values of the assets may be overstated or understated. For example, the firm owns accounts receivable, not all of which will be paid. Although the firm does allow for these potential losses in an effort to make the balance sheet entries more accurate, the allowances may be insufficient, and the value of the assets may be overstated. Conversely, the value of other assets may be understated. The land on which the plant is built may have increased in value but may continue to be carried on the company's books at its cost.

3.2a Assets

Current assets

While current assets are typically listed in order of liquidity (cash, accounts receivable, and inventory), the following discussion considers each asset in reverse order. Raw materials are first acquired and converted into finished goods. This inventory is then sold, at which time the firm receives either an accounts receivable or cash. Firms must have goods or services (or both) to sell. These goods are the firm's **inventory**.

Inventory
What a firm has available to sell

Accounts receivable
Amounts of money that are due to be paid to a seller from a buyer

When goods or services are sold, the firm receives either cash or a promise of payment in the future. A credit sale generates an **accounts receivable**, which represents money that is due to the firm. Daana's has SAR 1,172,000 in receivables; this is a net figure obtained by subtracting the doubtful accounts from the total amount of receivables. Since a firm does not always obtain payment from all its accounts receivable, it is necessary to make an allowance for these "doubtful accounts." Only the net realizable figure is included in the tabulation of the firm's assets.

A cash sale generates the asset "cash" for the firm. Since holding cash will earn nothing, some of it may be invested in short-term money

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Ministry of Education
2026 - 1448
Business Finance reprint_1p.indb 92 10/12/2024 15:10

instruments (often referred to as “cash equivalents”). Cash and short-term money instruments may be combined under a classification called cash and cash equivalents. For Daana’s, cash and short-term marketable securities total SAR 373,000. This money is available to meet the firm’s immediate financial obligations.

Cash and cash equivalents, accounts receivable, and inventory are the major short-term assets. Other current assets include the “prepaid expense,” which arises when an expense is paid before it occurs. For example, an insurance premium is paid at the beginning of the policy. The premium payment generates the asset, prepaid expenses. This asset is consumed (reduced) while the policy is in force, so at the end of the term of the policy, the prepaid expense account is reduced to zero. In 20X1, total current assets amounted to SAR 2,942,000. These short-term assets will flow through the firm during its fiscal year and will be used to meet its financial obligations that must be paid during the year. The total value and the nature of these assets are important in determining the firm’s ability to meet its current obligations.



Why is inventory classed as an asset rather than a liability?

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2026 - 1448

Long-term assets

Long-term assets include the firm's property, plant, and equipment, which are used for many years. The firm's employees utilize these long-term assets in conjunction with the current assets to create the products or services that the company offers for sale. The type and quantity of long-term assets that a company uses vary with the industry. Some industries, such as utilities and transportation, require numerous plants and extensive equipment. Firms in these industries must have substantial investments in long-term assets in order to operate. Not all companies choose to own these assets; instead, they may rent them, which is called leasing. Regardless of whether the firm leases or owns these assets, it must have the use of the long-term assets to produce the company's output.

As of the end of fiscal 20X1, Daana's had SAR 1,972,000 invested in buildings and equipment. This is a net number and includes the original investment in fixed assets minus depreciation. **Depreciation** is important because it is the process of allocating the cost of the fixed assets over a period of time. The value of long-term assets on a firm's balance sheet is reduced over time as the assets are used.

Depreciation
The process of allocating the cost of the fixed assets over a period of time

Land is also a long-term asset and may be included in fixed assets. Unlike investments in plant and equipment, land is not depreciated but is carried on the books at its cost or purchase price. Land values, however, may increase, in which case the accountants could increase the land's value on the books.

The remaining entry on the asset side of the balance sheet is "other long-term assets," which may include stock in other companies, goodwill, and intangibles. Even though stock in other companies may be sold and converted into cash, it is often considered separate from the firm's current assets and classified as a long-term asset. Goodwill occurs when one company buys another but pays more than the book value (the accounting value) of the acquired firm. For example, if company A buys company B for SAR 100 million but the book value is only SAR 60 million, then the acquiring firm accounts for the SAR 40 million difference as goodwill. Intangibles may include patents and trademarks.

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2026 - 1448

Business Finance reprint_1p.indb 94 10/12/2024 15:10

Total Assets

The total assets are the sum of the current assets (SAR 2,942,000), and the sum of long-term assets (the property, plant and equipment) (SAR 1,972,000), and the other assets (SAR 4,740,000), a total of SAR 9,654,000 in 20X1. These assets are financed by the claims of creditors and stockholders—the firm's liabilities and equity.

3.2b Liabilities

The firm's liabilities are divided into two groups:

- **Current liabilities** must be paid during the fiscal year
- **Long-term liabilities** are due after one year

Current liability
Debt that must be paid during the fiscal year

Long-term liability
Debt that becomes due to be repaid after one year

Current Liabilities

Current liabilities are primarily accounts payable and short-term loans. Just as the firm sells on credit, it may also purchase goods and raw material on credit. This trade credit is short-term and is retired as goods are produced and sold, and receivables collected. Daana's had SAR 1,130,000 in accounts payable. Its short-term debt amounted to SAR 61,000.

Additional current liabilities include accrued salaries and wages that have been earned, but not yet paid (SAR 325,000). Other accrued liabilities may include interest on the firm's outstanding debt and payments for the use of patents, as well as income taxes. As of 20X1, these current liabilities were SAR 485,000 and SAR 74,000, respectively. The sum of all the current liabilities was SAR 2,075,000.

Long-Term Liabilities

Long-term debt obligations must be retired at some time after the current fiscal year. Such obligations may include bonds that are outstanding and mortgages on real estate. These long-term debts represent part of the permanent financing of the firm because these funds are committed to financing the business for a long period of time. Short-term liabilities are usually not considered part of the firm's permanent financing because these liabilities must be paid within a relatively short period. Daana's has long-term liabilities that consist primarily of long-term debt (SAR 5,200,000 in 20X1).

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2026 - 1448

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3.2c Stockholders' or Shareholders' Equity

Stockholders' (or shareholders') equity completes the balance sheet. The initial entry is share capital (SAR 125,000). The next entry is for statutory reserve (SAR 57,500). Next is the retained earnings (SAR 1,141,500), which represents the firm's earnings over time that were not distributed to the shareholders.



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2026 - 1448

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3.3 The Income Statement

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Key Term

Income statement

What makes a company successful? Is a company doing well, or is it struggling to survive? How can you tell what the firm's financial health is? At a very basic level, a company is considered to be successful if it is generating income and making a profit. Companies use a report called an **income statement** (or a profit-and-loss statement) to summarize this. The income statement focuses on four key items—revenue, expenses, gains, and losses—during the specific accounting period. Income statements are often released as quarterly (every three months) and annual (every year) reports.

Income statement
Financial statement that summarizes revenues and expenses for a period of time to determine profit or loss

The income statement tells investors how much accounting income or profits the company has earned during a period of time (for example, its fiscal year). It is a summary of revenues and expenses and indicates the firm's accounting profits or losses. The income statement equation is illustrated in Figure 3.6. It is not, however, a detailed summary of cash receipts and disbursements.

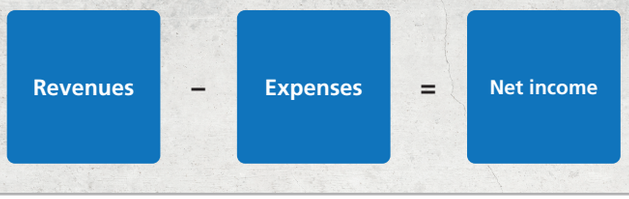

FIGURE 3.6
The Income Statement Equation

Figure 3.7 provides the 20X1 and 20X0 income statements for Daana's Delights. The statement is constructed as follows:

- **Step 1:** The statements start with a summary of the firm's sources of revenues: net sales (total sales minus returns) of SAR 10,200,000 in 20X1.
- **Step 2:** Next follows a summary of the cost of goods sold (SAR 6,600,000).
- **Step 3:** Gross profit is calculated as the difference between the net sales and the cost of goods sold (SAR 3,600,000).
- **Step 4:** Then, the selling, administrative expenses, and depreciation are subtracted to determine the operating earnings or earnings before interest and taxes (SAR 1,500,000). (Note: If the firm has other sources of income—for instance, dividends received—they are added to the

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 97 10/12/2024 15:10

operating earnings to determine the company's total earnings before interest and taxes.)

- **Step 5:** To determine net earnings, net interest expense (SAR 340,000 – SAR 65,000) and taxes (SAR 380,000) must be subtracted from the SAR 1,500,000, which yields net earnings of SAR 845,000.

When the firm earns profits, management must decide what to do with these earnings. There are two choices: (1) to pay out the earnings to stockholders in the form of cash dividends, or (2) to retain the earnings. The retained earnings on the balance sheet are the sum of all the firm's undistributed earnings that have accumulated but that have not been paid out in dividends during the company's life. These retained earnings are used to finance the purchase of assets or to retire debt. How this year's earnings were used does not appear on the income statement. The income statement merely summarizes revenues and expenses during the fiscal year and indicates whether the firm produced a net profit or loss.

FIGURE 3.7
Daana's Delights
Statement of Income

For the Fiscal Year Ending December 31, 20XX	20X1	20X0
Revenue		
Sales	10,200,000	10,100,000
Cost of goods sold	(6,600,000)	(6,400,000)
Gross profit (Loss)	**SAR 3,600,000**	**SAR 3,700,000**
Operating Expenses		
Selling and administrative	(2,100,000)	(2,100,000)
Net operating income	**SAR 1,500,000**	**SAR 1,600,000**
Non Operating, Other		
Interest income	65,000	42,000
Interest expense	(340,000)	(370,000)
Profit before tax	**SAR 1,225,000**	**SAR 1,272,000**
Income tax expense	(380,000)	(370,000)
Net Profit (Loss)	**SAR 845,000**	**SAR 902,000**

Earnings per common share:

For the Fiscal Year Ending December 31, 20XX	20X1	20X0
Earnings per common share	SAR 1.97	2.10
(430,000 shares of common stock outstanding)		

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 98 10/12/2024 15:11

3.3a Earnings Per Share

Stockholders are generally not concerned with total earnings but with earnings per share. The separate line after the income statement in Figure 3.7 shows the earnings per share (EPS = SAR 1.97), which is net earnings (845,000) divided by the number of shares outstanding (430,000). This is the amount of earnings available to each share of common stock, and may not be simply earnings divided by the number of shares outstanding at the end of the year. Since the firm may issue or repurchase stock throughout the year, it does not have the use of the funds for the entire year. The funds raised by issuing shares (or the funds used to repurchase shares) could not generate current income. Thus, shares outstanding are averaged over the year to determine earnings per share:

$$\text{Earnings per share} = \frac{\text{Net earnings}}{\text{Number of shares outstanding}}$$

$$\text{20X1: Earnings per share} = \frac{845{,}000}{430{,}000} = \text{SAR } 1.97$$

$$\text{20X0: Earnings per share} = \frac{902{,}000}{430{,}000} = \text{SAR } 2.10$$

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3.4 Statement of Cash Flows

Key Term

Statement of cash flows

Accountants, financial managers, and investors put an emphasis on analyzing a firm's ability to generate cash, which has led to the creation of the "statement of cash flows." This statement determines the changes in the firm's holdings of cash and cash equivalents, and serves as a link between the income statement and the balance sheet.

Statement of cash flows
A financial statement summarizing the amount of money that is coming into and going out of a firm

The **statement of cash flows** is divided into three sections:

1. operating activities.
2. investment activities.
3. financing activities.

In each section, it enumerates the inflow and outflow of cash.

The cash inflows are:

4. a decrease in an asset.
5. an increase in a liability.
6. an increase in equity.

The cash outflows are:

7. an increase in an asset.
8. a decrease in a liability.
9. a decrease in equity.

The bottom line of the statement of cash flows is the firm's cash position at the end of the accounting period. If the firm uses more cash than it generated, its cash holdings (or cash equivalents) will decline. Conversely, if the firm's cash inflows exceed the outflows, its cash and cash equivalents will rise. By placing the emphasis on cash, the statement permits the analyst to see where the firm generated cash and how this money was used. Figure 3.8 illustrates a statement of cash flow for Khalid's sustainable technology company.

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2026 - 1448

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Statement of Cash Flows	
Cash Flows from Operating Activities	
Net profit	890,000
Add depreciation	30,000
Current Assets	
– Increase in accounts receivable	–40,000
+ Decrease in inventory	80,000
+ Decrease in prepaid expenses	9,000
– Increase in other current assets	–11,000
Current Liabilities	
– Decrease in short-term debt	–120,000
– Decrease in accounts payable	–70,000
+ Increase in accrued salary and wages	34,000
– Decrease in other accrued liabilities	–4,500
+ Increase in accrued income taxes payable	13,000
(A) Cash Flows From Operating Activities	**SAR 810,500**
Investing Activities (Long-term Assets)	
– Increase in plant (purchases)	–225,000
– Increase in buildings (purchases)	–113,000
+ Decrease in equipment (sales)	80,000
– Increase in other long term assets	–112,000
(B) Cash Flows From Investing Activities	**SAR –370,000**
Financing Activities (Long-term Liabilities)	
+ Increase in Long-term debt	145,000
– Decrease in deferred taxes	–60,000
– Decrease in other long-term liabilities	–118,000
Subtract dividends	–356,000
(C) Cash Flows From Financing Activities	**SAR –389,000**
Net Cash Flow (A + B + C)	**SAR 51,500**
Beginning Cash (20X0)	**SAR 234,000**
Ending Cash (20X1)	**SAR 285,500**

FIGURE 3.8
Khalid's Sustainable Technology Company's Statement of Cash Flows for 20X1

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2026 - 1448

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3.5 Financial Statement Analysis

Key Terms

Vertical analysis
Horizontal analysis
Ratio analysis
Profitability ratios
Liquidity ratios
Activity ratios
Leverage ratios
Coverage ratios
Time series analysis
Cross-sectional analysis

Accounting data are often used to analyze a firm's financial condition. Such analysis may be conducted by creditors to measure the safety of their loans. Investors also analyze financial statements to learn how well management is performing. The profitability of the firm may be perceived in the financial statements. In addition, management analyzes the data in financial statements to identify weaknesses in the firm, which, if corrected, may increase the firm's profitability and value.

You can easily download financial statements for publicly traded companies from the Internet. However, once you have them, how do you go about analyzing a set of accounting documents? Typically, professionals will follow one of two common methods to analyze a company's financial statements: vertical and horizontal analysis, and ratio analysis.

Vertical and horizontal analysis are two related, but different, techniques used to analyze financial statements. They each refer to the way in which a financial statement is read, and the comparisons that an analyst can draw from the reported values. Both types of analysis are critical to gaining an accurate understanding of the information provided in a financial statement.

3.5a Vertical Analysis

Vertical analysis
A method for analyzing accounting data by reading down a single column in a financial statement and determining how each individual line items in the statement relates to another base figure in the report

Vertical analysis is the process of reading down a single column in a financial statement and determining how each individual line item in the statement relates to another base figure in the report. For example, in an income statement, each line item might be listed as a percentage of gross sales and line items on a balance sheet may be shown as a percentage of total assets (see Figure 3.9).

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2026 - 1448

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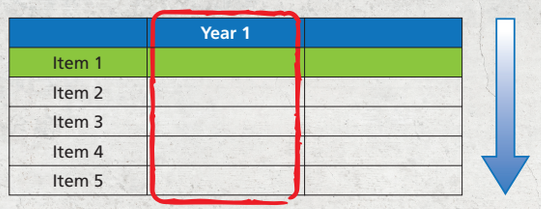


FIGURE 3.9
Vertical Analysis of a Financial Statement

Read down a single column in a financial statement and determine how each individual line item in the statement relates to the base figure

3.5b Horizontal Analysis

Horizontal analysis, on the other hand, refers to the process of comparing current financial data to previous reporting periods. Horizontal analysis can either use absolute comparisons or percentage comparisons, where the numbers in each succeeding period are expressed as a percentage of the amount in the baseline year (see Figure 3.10). Reading a financial statement in this way shows how different financial metrics have changed over time. For example, have liabilities increased or decreased from Q1 to Q4?

Horizontal analysis
A method for evaluating accounting data by comparing current financial data to previous reporting periods



FIGURE 3.10
Horizontal Analysis of a Financial Statement

Compare the data of each item in different periods in relation to the base period, in this case Year 1 compared with Year 2

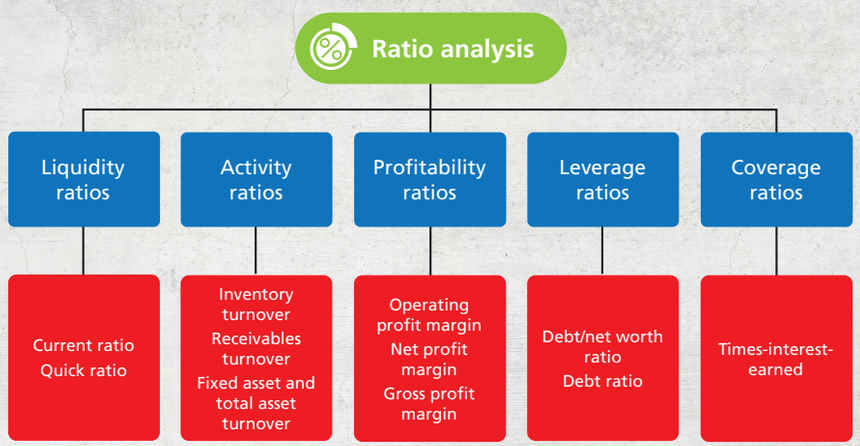
3.5c Ratio Analysis of Financial Statements

Ratio analysis compares different line items from the financial statements, but neither reads them horizontally nor vertically. Instead, multiple line items may be combined and expressed as a ratio, the relationship between the two quantities—normally expressed as the quotient of one divided by the other.

Ratio analysis
The process of evaluating elements of a financial report as they relate to other pieces of information in the same report

There are many different ratios which can help you gain insight into the health of a company. These ratios are generally broken into broad categories including: profitability ratios, liquidity ratios, and activity ratios, as illustrated in Figure 3.11.

FIGURE 3.11
Types of Ratio Analysis



Profitability ratios
A firm's ability to generate earnings relative to its revenue, operating costs, assets, or equity over time

Liquidity ratios
A company's ability to pay off current debt obligations without securing external capital

Activity ratios
An indicator of how well a company is using its resources to generate revenues and cash

Leverage ratios
An indicator of the extent to which a firm's operations are funded by debt

Coverage ratios
The ability of the firm to service interest or dividend payments

Profitability ratios assess a business's ability to generate earnings relative to its revenue, operating costs, assets, or equity over time. Some important profitability ratios include gross profit ratio, return on equity, break-even point, and return on net assets.

Liquidity ratios provide perspective on a company's ability to pay off current debt obligations without needing to secure external capital. Liquidity is the ability to convert assets into cash quickly and is an important part of a company's ability to stay in business. Some important liquidity ratios include cash coverage ratio, current ratio, and liquidity index.

Activity ratios indicate how well a company is using its resources to generate revenues and cash. Some important activity ratios include accounts payable turnover rate, accounts receivable turnover rate, inventory turnover rate, and working capital turnover rate.

Leverage ratios show how dependent a company is on debt to maintain its operations. These ratios also assess the ability of the firm to meet its financial obligations. Some important leverage ratios include debt to equity ratio, debt service coverage ratio, and fixed charge coverage.

Coverage ratios show the ability of the firm to service interest or dividend payments. An important coverage ratio is the times-interest-earned ratio.

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2026 - 1448

Business Finance reprint_1p.indb 104 10/12/2024 15:11

3.5d Time Series and Cross-Sectional Analysis

These ratios may be computed and interpreted from two viewpoints known as time series analysis and cross-sectional analysis, as follows:

- In **time series analysis** or *trend analysis* the ratios are compiled for a period of years to perceive trends.
- In **cross-sectional analysis** the ratios may be computed at the same time for several firms within an industry.

Time series and cross-sectional analysis may be used together. Rarely will all the ratios indicate the same general tendency. When taken as a group, the ratios should give you an indication of the direction in which the firm is moving and how it compares with other firms in its industry.

Time series analysis
Evaluation of a firm's financial performance over a period of time

Cross-sectional analysis
An evaluation of data about several firms in the same industry at a point in time



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2026 - 1448

Business Finance reprint_1p.indb 105 10/12/2024 15:11

3.5e The Value of Ratios as a Tool for Analysis

Analysis of financial statements through ratios can be an invaluable tool for managers, investors, and creditors to establish how a firm is performing over time and relative to its competition. Some of the benefits of ratio analysis are as follows:

- Ratios can indicate trends, such as a deterioration in the firm's profitability, enabling management to take action to prevent or minimize future difficulties.
- Ratios can be used to analyze performance of a firm compared to other companies within the same industry. (To make such comparisons, you must have access to industry averages or benchmarks, which can be sourced from Bloomberg, Thomson Reuters, or other data providers.)
- By calculating their own ratios, financial analysts and creditors can choose the ratios most applicable to the intended use of the analysis, rather than relying on less relevant data provided by other sources.

This final point is important. The following points highlight the challenges associated with ratio analysis when using data from published sources:

- Published industry averages may be based on the prior year's financial statements, reducing comparability of the data with current-year financial ratios.
- The individual firm may not fit neatly into one of the industry categories. Large firms, such as Savola Group, have operations in a variety of related fields (for example, drinks and foods), which reduces the comparability of ratios for similar, but not identical, firms (for example, Al Jomaih Bottling Plants, which operates in the beverages sector).
- Even if industry averages are presented for firms in comparable industries, the challenge of comparing firms of different sizes remains (for example, comparing the local grocery store with a large supermarket chain).

Despite these challenges associated with its application, ratio analysis remains a convenient way to analyze a firm's financial condition, particularly when combined with other financial analysis tools.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 106 10/12/2024 15:11



In the sections that follow, several ratios are discussed and illustrated. These ratios do not exhaust all the possible ratios. The purpose of this chapter is only to illustrate how ratios are compiled, interpreted, and used, employing the balance sheet as of the end of the 20X1 fiscal year (Figure 3.5), and income statement for the 20X1 fiscal year (Figure 3.7). You also need to be forewarned that a ratio can have more than one definition. The definition used by one analyst may differ from that used by another. You cannot assume that the analysis obtained from one source is comparable to that provided by an alternative source. Why is it useful to be able to understand how well a company is performing?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 107 10/12/2024 15:11

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3.6 Liquidity Ratios

Key Terms

Current ratio

Quick ratio (acid test)

Liquidity typically refers to the ease with which assets may be converted into cash without affecting their market price or selling them at a loss. Cash is considered to be the most liquid of assets, while physical items are generally less liquid. In accounting terms, liquidity measures the ease with which a company can meet their financial obligations with their liquid assets on hand. If a firm is liquid, it has sufficient cash to pay its bills as they come due. Thus, liquidity ratios are useful not only to short-term creditors of the firm, who are concerned with being paid, but also to the firm's management, who must make the payments. Some of the most commonly used liquidity ratios are discussed in the following sections.

3.6a The Current Ratio

Current ratio
Ratio of a firm's current assets to its current liabilities; measure of liquidity

The **current ratio** is the ratio of a firm's current assets to its current liabilities:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

This ratio indicates how well the current liabilities, which must be paid within a year, are "covered" (meaning that there is sufficient cash available). Does the firm have enough cash to pay for its current obligations? (See Figure 3.12)

For Daana's, current assets are SAR 2,942,000 and current liabilities are SAR 2,075,000; thus, the current ratio is:

$$\frac{\text{SAR } 2{,}942{,}000}{\text{SAR } 2{,}075{,}000} = 1.42$$

which indicates that for every Riyal that the firm must pay within the year, there is SAR 1.42 in an asset that is either cash or should become cash during the year available to pay the obligation.

For most industries it is desirable to have more current assets than current liabilities.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 108 10/12/2024 15:11

Current ratio	Indication
CR < 1	Firm can't meet its obligations with current assets
1 < CR < 2	Firm has sufficient assets to meet current liabilities
CR > 2	Firm has ample cash; may want to redeploy more efficiently

FIGURE 3.12
Interpreting the Current Ratio

You Try It

Hasan's office supplies company has current assets of SAR 1,000. It has current liabilities of SAR 650. Calculate its current ratio and interpret your result.

Can the company meet its obligations? Do you think it has enough of a cash buffer to withstand bad accounts receivables or other shortfalls?

Why do you think analysts use more than one type of ratio to analyze financial statements?



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 109 10/12/2024 15:11

3.6b The Quick Ratio

Quick ratio (acid test)
Current assets excluding inventory divided by current liabilities; an indicator of liquidity

The **quick ratio** or *acid test* calculates the ratio of all current assets—except inventory—divided by current liabilities. This ratio focuses on those assets that may be used quickly if needed. The quick ratio is expressed as:

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

For Daana's we can calculate the quick ratio as:

$$\frac{\text{SAR } 2{,}942{,}000 - \text{SAR } 1{,}235{,}000}{\text{SAR } 2{,}075{,}000} = 0.82$$

A low quick ratio indicates that the firm may have difficulty meeting its obligations as they come due, although it does not indicate that the firm will fail to pay. The quick ratio simply indicates how well the current liabilities are covered by cash and assets that may be converted into cash relatively quickly. In effect, the quick ratio considers that not all current assets are equally liquid and is a more stringent measure of liquidity than the current ratio.

You Try It

Ahmed's computing store has the following:

Cash	SAR 2,000
Cash equivalents (government bonds)	SAR 500
Accounts receivable	SAR 1,000
Inventory	SAR 600
Current liabilities	SAR 3,250

Calculate both the current ratio and quick ratio. What differences do these values suggest? Which of the two methods would you recommend, and why?

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2026 - 1448

Business Finance reprint_1p.indb 110 10/12/2024 15:11

3.7 Activity Ratios

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Key Terms

Inventory turnover	Fixed asset turnover
Receivables turnover	Total asset turnover

Activity ratios indicate how rapidly the firm is turning its assets (for example, inventory and accounts receivable) into cash. Two activity ratios that are frequently encountered are inventory turnover (how quickly they can sell their products) and receivables turnover (the average time required to collect outstanding debt).

3.7a Inventory Turnover

Inventory turnover is a measure used by accountants and managers to objectively measure the speed at which things are sold. Inventory turnover is defined as annual sales divided by average inventory:

Inventory turnover
The speed with which the things that a firm has available to sell are sold

$$\text{Inventory turnover} = \frac{\text{Sales}}{\text{Average inventory}}$$

Since most assets must be financed, the more rapidly the asset inventory turns over, the less financing is needed by the firm. Since Daana's 20X0 year-end inventory was SAR 1,380,000 and current inventory is SAR 1,235,000, the inventory turnover for 20X1 is:

$$\frac{\text{SAR } 10{,}200{,}000}{(\text{SAR } 1{,}235{,}000 + \text{SAR } 1{,}380{,}000) / 2} = 7.8$$

This indicates that annual sales are 7.8 times the level of inventory. Put another way, inventory turns over 7.8 times a year or about once every 1.5 months (12 months/7.8 times = 1.5 months/turnover). The turnover may be expressed in days by dividing the number of days in a year by the inventory turnover.

$$\text{Turnover in days} = \frac{\text{Number of days in a year}}{\text{Inventory turnover}}$$

Thus, in this illustration, the firm holds an average item of inventory for almost 47 days (365/7.8 = 47).

Since management can anticipate that on the average inventory will be held for 47 days, the firm will need to find financing for that period of time to carry the inventory.

You Try It

Omar's business started the year with SAR 2,100,000 in inventory. At the end of the period, the inventory was SAR 2,350,000. The company's sales volume during the same time was SAR 10,450,500.

What is the inventory turnover for the year? What is the turnover in days? How would you interpret your calculations?

3.7b Receivables Turnover

Receivables turnover
The speed with which a firm is able to collect money that is owed

A measure used to gauge how efficiently accounts receivable are being collected is **receivables turnover**, which can be defined as the annual sales divided by the accounts receivable. Thus, the receivables turnover ratio is expressed as follows:

$$\text{Receivables turnover} = \frac{\text{Annual sales}}{\text{Accounts receivable}}$$

For Daana's Delights, the receivables turnover is:

$$\text{Receivables turnover} = \frac{\text{SAR } 10{,}200{,}000}{\text{SAR } 1{,}172{,}000} = 8.7$$

Note that 8.7 times a year is about every 42 days (365/8.7).

You Try It

Sarah's online electronics business has annual sales of SAR 1,500,000 and accounts receivable of SAR 225,000.

What is the receivables turnover?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 112 10/12/2024 15:11

3.7c Fixed Asset and Total Asset Turnover

Companies invest significantly in fixed assets to support their business operations. These fixed assets include things such as property, factories, and the equipment needed to support production. Most of these fixed assets are very expensive and investors want to know if the investment in these assets is rewarding the company with increases in sales. One way to measure this is to compare the firm's net sales to its fixed assets to gauge the company's ability to generate sales from the fixed asset investments. The **fixed asset turnover** ratio is defined as:

Fixed asset turnover
An efficiency ratio that indicates how well or efficiently a business uses objects that have been purchased for long-term use to generate sales

$$\text{Fixed asset turnover} = \frac{\text{Sales}}{\text{Fixed assets}}$$

For Daana's, the fixed asset turnover is:

$$\frac{\text{SAR } 10{,}200{,}000}{\text{SAR } 1{,}972{,}000} = 5.2$$

This result indicates that sales are 5.2 times fixed assets (land, plant, and equipment). The higher this ratio, the more sales the firm is generating from their fixed asset investments, signaling that the plant and equipment the firm is employing is yielding good results. These ratios differ by industry. Utilities, for example, must make a substantial investment in equipment to produce the output they sell, whereas retailers or service providers may need only modest amounts of fixed assets.

Another measure of efficiency is to compare sales to all assets. **Total asset turnover** measures how assets are used to generate sales. The definition of total asset turnover is:

Total asset turnover
Ratio of sales to everything that a firm owns; a measure of the amount of assets that a firm has which is required to generate sales

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

For Daana's, the total asset turnover is:

$$\frac{\text{SAR } 10{,}200{,}000}{\text{SAR } 9{,}654{,}000} = 1.06$$

This indicates the firm needs SAR 1.00 in assets for every SAR 1.06 generated in revenues.

You Try It



Rasheed's technology company has sales of SAR 25,689,000, fixed assets of SAR 2,800,000, and total assets of SAR 5,000,000. Calculate the fixed asset turnover and the total asset turnover.

Exercises

Choose the correct answer.

1. A measure used to gauge how efficiently accounts receivable are being collected is receivables turnover.

True / False

2. An inventory turnover ratio of 8.2 means that:

a. inventory has turned over 8.2 times during the year.
b. cash is 8.2 times annual sales.
c. annual sales were 8.2 times annual average inventory.
d. the company's assets are high during the year.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 114 10/12/2024 15:11

3.8 Profitability Ratios

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Key Terms

Gross profit margin

Return on total assets

Profitability ratios are measures of performance that indicate what the firm is earning on its sales, assets, or equity.

3.8a Gross Profit Margin

A popular profitability ratio used by many financial analysts is the **gross profit margin**. This is the ratio of revenues minus cost of goods sold to sales, and can also be seen as the percentage earnings on sales before considering operating expenses, interest, and taxes. The ratio is calculated as follows:

Gross profit margin
Ratio of revenues minus cost of goods sold to sales; percentage earnings on sales before considering operating expenses, interest, and taxes

$$\text{Gross profit margin} = \frac{\text{Revenue} - \text{Cost of goods sold}}{\text{Revenue}}$$

For Daana's, the gross profit margin is:

$$\frac{\text{SAR } 3{,}600{,}000}{\text{SAR } 10{,}200{,}000} = 35.3\%$$

This ratio indicates that the firm earns SAR 0.35 on every Riyal of sales before considering administrative, advertising, depreciation, and financing expenses.

You Try It

Ali's bakery has a revenue of SAR 45,000, and cost of goods of SAR 12,000.

What is Ali's gross profit margin?

3.8b Return on Total Assets

Return on total assets
Ratio of a firm's earnings to the total amount that it owns; a percentage earned on assets

Another profitability ratio measures the **return on total assets**. The return on total assets is earnings divided by assets, and measures what a firm earns on its resources.

$$\text{Return on total assets} = \frac{\text{Earnings after interest and taxes}}{\text{Total assets}}$$

For Daana's, the return on total assets is:

$$\frac{\text{SAR } 845{,}000}{\text{SAR } 9{,}654{,}000} = 8.8\%$$

This indicates that the firm returns SAR 0.088 for every Riyal invested in assets.

You Try It



Najla's logistics company has earnings after interest and taxes of SAR 7,560,000 and total assets of SAR 4,425,000. What is the company's return on total assets?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 116 10/12/2024 15:11

3.9 Leverage Ratios

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Key Terms

Debt/net worth ratio Debt ratio

Leverage ratios measure the firm's use of debt financing. The two most commonly used ratios to measure financial leverage are (1) debt to equity, which is often referred to as the **debt/net worth ratio**, and (2) debt to total assets, which is commonly referred to as the **debt ratio**. These ratios compare the amount of debt to the firm's net worth (equity) or its overall assets. These ratios should be compared to other firms in the same industry.

Debt/net worth ratio
The ratio of money owed to equity; money owed divided by equity

Debt ratio
The total amount of money owed divided by the total assets; the proportion of assets financed by money owed; a measure of financial leverage

3.9a Debt/Net Worth Ratio

The debt/net worth ratio is:

$$\text{Debt/net worth ratio} = \frac{\text{Debt}}{\text{Equity}}$$

Daana's Delights has total debt of SAR 8,330,000 (that is the sum of current liabilities and long-term debt). Therefore:

$$\frac{\text{Debt}}{\text{Equity}} = \frac{\text{SAR 8,330,000}}{\text{SAR 1,324,000}} = 6.29$$

The debt/net worth ratio indicates that there is SAR 6.29 of debt for every Riyal of owner equity.

You Try It



Noor's furniture factory is currently carrying SAR 12,450,000 in debt. Its balance sheet shows an equity of SAR 3,500,000.

Calculate Noor's debt/net worth ratio. How much debt does Noor have for each Riyal of owner equity?

3.9b Debt Ratio

The debt ratio is:

$$\text{Debt ratio} = \frac{\text{Debt}}{\text{Total assets}}$$

In the case of Daana's Delights, the debt ratio is:

$$\frac{\text{Debt}}{\text{Total assets}} = \frac{\text{SAR } 8{,}330{,}000}{\text{SAR } 9{,}654{,}000} = 86.3\%$$

The debt ratio indicates that debt is financing 86.3% of the firm's assets.

You Try It



Noor's furniture factory has SAR 12,450,000 in debt, and its total assets are worth SAR 25,750,000.

Calculate Noor's debt ratio. What percentage of Noor's assets are being funded by debt?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 118 10/12/2024 15:11

3.10 Coverage Ratios

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Key Term

Times-interest-earned

Coverage ratios indicate the ability of the firm to service (to "cover") interest or dividend payments. All coverage ratios consider the funds available to meet a particular expense relative to that expense. The most common is **times-interest-earned**, which measures the ability of the firm to meet its interest obligations. That ratio is:

Times-interest-earned
Ratio of operating income (EBIT) to interest expense; measure of the safety of a debt instrument

$$\text{Times interest earned} = \frac{\text{Earnings before interest and taxes}}{\text{Annual interest charges}}$$

A ratio of 2 indicates that the firm has SAR 2 in operating income for every SAR 1 in interest expense. The numerator uses operating income (EBIT), since interest is paid after other expenses but before taxes. The higher the numerical value of the ratio, the safer should be the interest payment. For Daana's, the times-interest-earned ratio is:

$$\frac{\text{SAR } 1{,}500{,}000}{\text{SAR } 340{,}000} = 4.41$$

This indicates that Daana's has operating income of SAR 4.41 for every SAR 1 in interest expense, which suggests that the firm should easily meet its interest obligations.

You Try It

Abdullah's industrial service has earnings before interest and taxes of SAR 89,200,000 and annual interest charges of SAR 17,940,000.

Calculate the times-interest-earned.

Exercises

Choose the correct answer.

1. Coverage ratios indicate the ability of the firm to service (to "cover") interest or dividend payments.

True / False

2. A times-interest-earned ratio of 3.5 indicates:

a. the firm has operating income of SAR 3.5 for every SAR 1 in interest expense.

b. the firm has operating expenses of SAR 3.5 for every SAR 1 in interest expense.

c. the firm has operating income of SAR 35 for every SAR 1 in interest expense.

d. the firm has operating expenses of SAR 35 for every SAR 1 in interest expense.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 120 10/12/2024 15:11

3.11 Limitations of Accounting Data

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When formally prepared and presented, financial statements appear to be very objective and thorough. However, financial reports have some inherent weaknesses as well (see Figure 3.13). Understanding these will help you to make use of these statements and evaluate them more critically.

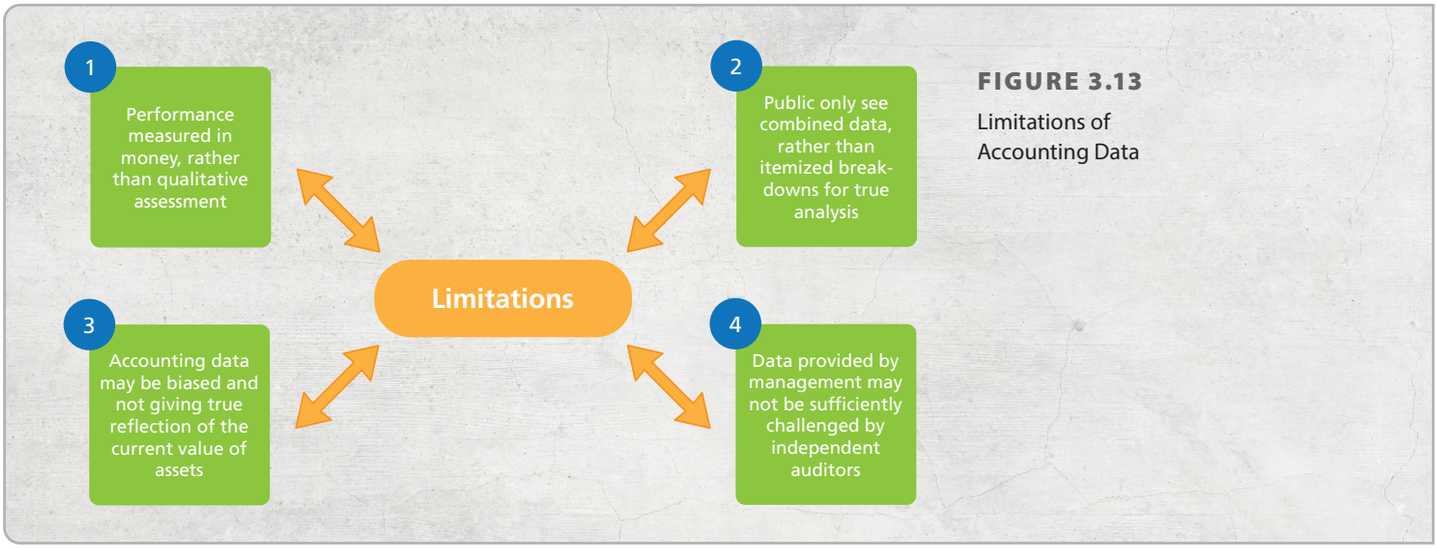


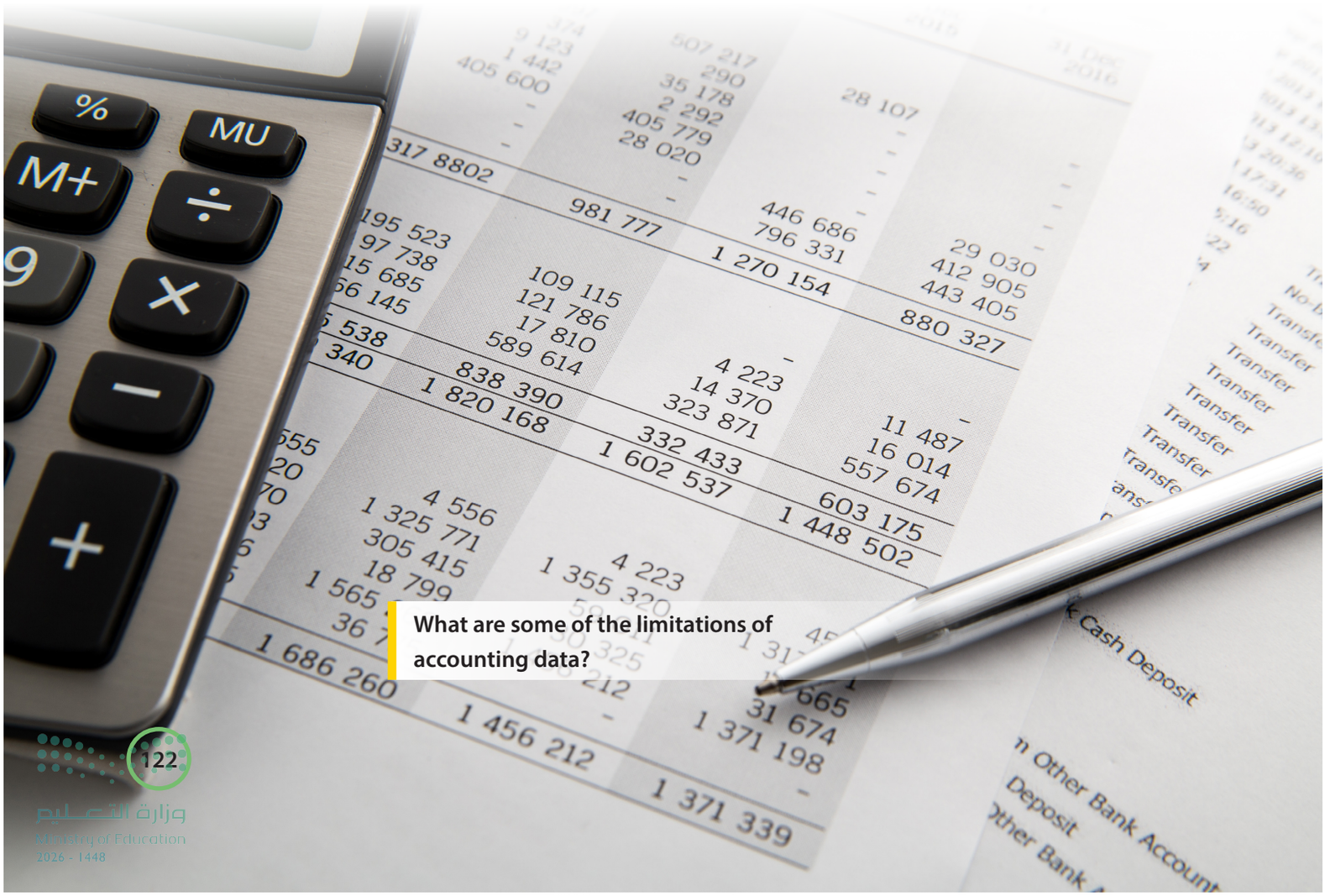
FIGURE 3.13
Limitations of Accounting Data

Four of the most common weaknesses in financial reporting are:

- First, performance is measured solely in terms of money, rather than qualitative effectiveness. A relationship probably does exist between performance and superior financial statements. The strong financial statements of Saudi Aramco and Saudi Basic Industries, for example, mirror the quality of their management and staff. However, many firms may be able to improve their financial position temporarily and achieve short-term superior performance that cannot be maintained.
- Second, accounting statements that are available to the public often give combined, rather than individually itemized, data, which may hide important information that the investor or securities analyst could use in studying the company.
- Third, the valuation of assets by the lower of either cost or market value may result in biased information if the Riyal value of the assets has significantly risen (as may occur during periods of inflation). Such

increases in value are hidden by the use of the historical cost, and thus the accounting statements do not give a true indication of the current value of the firm's assets.

- Fourth, accounting data may not be accurate or sufficiently challenged by auditors. The accounting statements of publicly held firms must be audited annually by an independent certified public accountant (CPA), as regulated in Saudi Arabia by SOCPA. The CPA issues an "auditor's opinion" that attests to the fairness of the financial statements and their conformity with the Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS). The auditors, however, may lack knowledge in specific areas and accept management's data, or may not challenge presentations of gray areas, which are open to interpretation. Thus, the financial analyst or investor should realize that audited financial statements are not absolute truths but include judgments that may affect the accuracy of the financial statements.



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 122 10/12/2024 15:11

Exercises

Choose the correct answer.

1. Accounting statements that are available to the public provide individually itemized data, which may give all-important information that the investor or securities analyst could use in studying the company.

True / False

2. Which of the following can be considered weaknesses in using accounting statements?

a. Performance is measured in money, rather than qualitative assessment.

b. Data provided by management may not be sufficiently challenged by independent auditors.

c. Accounting data may be biased and not give a true reflection of the current value of assets.

d. All of the above are true.



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 123 10/12/2024 15:11

Chapter 3 Assessment

SUMMARY

This chapter covered some essential financial statements. A balance sheet enumerates at a point in time what a firm owns (its assets), what it owes (its liabilities), and what owners have invested in a firm (its equity). An income statement enumerates a firm's revenues and expenses over a period of time, and determines if a firm operated at a profit or a loss. A cash flow statement enumerates cash inflows and outflows. Companies around the world are typically expected to follow international standards in financial reporting. Like many countries, Saudi Arabia follows the IFRS framework. However, regional variations in business administration, informed by local regulations, laws, customs, and terminology, can impact some aspects of reporting. This can present challenges when attempting to draw like-for-like comparisons between statements of companies originating from different countries. Even companies operating in the same country and sector can present information in contrasting ways.

Ratio analysis provides a convenient method to analyze a firm's financial statements, for the ratios are easily computed and readily permit comparisons. Since publicly held corporations must give financial information to shareholders, ratio analysis may be employed not only by management and creditors but also by shareholders.

Liquidity ratios measure the capacity of the firm to meet its current obligations as they come due. Activity ratios indicate how rapidly assets flow through the firm and how many assets are used to generate sales. Profitability ratios measure performance; leverage ratios indicate the use of debt financing; coverage ratios measure the capacity of the firm to make certain payments, such as interest. Once the ratios have been computed, the results may be compared over a series of years or compared with other firms within the industry. Such comparisons should help the analyst perceive the firm's position within the industry, as well as trends that are developing.

QUESTIONS

1. List some of the different types of people who might wish to analyze the balance sheet of a firm and explain why each would benefit from the information it provides.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 124 10/12/2024 15:11

2. Name the two main recognized accounting standards and provide some basic differences between the two.

3. What are the main components of a balance sheet?

4. Describe three types of ratio analysis.

5. Describe two limitations of financial accounting data.

EXERCISES

For each exercise, work out the ratio using the formulas introduced in this chapter and explain how the ratio can provide insight into the company's financial performance.

1. Ali's electrical shop has current assets of SAR 4,500,000, inventory of SAR 630,000, and current liabilities of SAR 2,754,000.
   a. Calculate the current ratio

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 125 10/12/2024 15:11

b. Calculate the quick ratio

2. Omar's computing service has annual sales of SAR 2,013,000 and accounts receivable of SAR 825,000. What is its receivables turnover?

3. Asma's technology company has sales of SAR 12,560,000, fixed assets of SAR 3,000,000, and total assets of SAR 4,500,000.

a. Calculate the fixed asset turnover

b. Calculate the total asset turnover

4. Rasheed's solar supplies has revenues of SAR 58,000,000 and cost of goods sold of SAR 25,100,000. What is the company's gross profit margin?

5. Khalid's logistics company has earnings after interest and taxes of SAR 6,750,000 and total assets of SAR 1,300,000. What is its return on total assets?

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2026 - 1448

Business Finance reprint_1p.indb 126 10/12/2024 15:11

ASSESSMENT QUESTIONS

Choose the correct answer.

1. Patents and trademarks should be considered as shareholder's equity.

True / False

2. Long-term assets include a firm's property, plant, and cash equivalents.

True / False

3. A company has total assets of SAR 11,500,000 and liabilities of SAR 8,250,000. What is the level of shareholders' equity?

a. SAR 19,750,000

b. SAR 11,500,000

c. SAR 3,250,000

d. It cannot be determined from the information provided.

4. Total assets are the sum all of the following EXCEPT:

a. stakeholder's equity.

b. current assets.

c. property, plant, and equipment.

d. other assets.

5. An income statement is also called a profit-and-loss statement.

True / False

6. An income statement shows Revenues – Expenses = Shareholder's Equity.

True / False

7. When the firm earns profits, management can do the following with these earnings:

a. pay out the earnings to stockholders in the form of cash dividends

b. retain the earnings

c. issue new shares

d. both a. and b.

8. A firm's earnings per share have decreased from one year to the next year. This could be due to:

a. lower revenue.

b. higher expenses.

c. issuing more shares of stock.

d. All of these could be true.

9. A cash flows statement is the firm's cash position at the end of the accounting period.

True / False

10. The statement of cash flows is divided into these sections EXCEPT:

a. operating activities.
c. investment activities.
b. earnings activities.
d. financing activities.

11. A statement of _____ _____ determines the changes in the firm's holdings of cash and cash equivalents, and serves as a link between the income statement and the balance sheet.

a. cash flow
c. income flow
b. cash position
d. asset flow

12. Ratios can indicate trends, for example, a deterioration in the firm's profitability, enabling management to take action to prevent or minimize future difficulties.

True / False

13. Horizontal analysis refers to the process of comparing current financial data to previous reporting periods.

True / False

14. The analysis using ratios computed at the same time for several firms within an industry is called:

a. time series analysis.
c. cross-sectional analysis.
b. competitive ratio analysis.
d. finance comparison ratios.

15. Liquidity typically refers to the ease with which assets may be converted into cash without affecting their market price or selling them at a loss.

True / False

16. The quick ratio or acid test calculates the ratio of all current assets to liabilities EXCEPT:

a. inventory.
c. prepaid expenses.
b. cash.
d. receivables.

17. The ratio of revenues minus cost of goods sold to sales is called return on total assets.

True / False

18. A return on total assets of 4.4% means that:

a. the firm returns SAR 44 for every Riyal invested in assets.
c. the firm returns SAR 0.44 for every Riyal invested in assets.
b. the firm returns SAR 4.4 for every Riyal invested in assets.
d. the firm returns SAR 0.044 for every Riyal invested in assets.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 128 10/12/2024 15:11

19. Leverage ratios measure the firm's use of debt financing.

True / False

20. A debt ratio of 86.3% indicates:

a. the firm's debt is financing 86.3% of the firm's assets.

b. the firm's debt is financing 86.3% of the firm's inventory.

c. the firm's debt is financing 86.3% of the firm's current assets.

d. the firm's debt is financing 86.3% of the firm's long-term assets.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 129 10/12/2024 15:11

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your Choice	Definition
1. Accounts receivable		**a.** An indicator of how well a company is using its resources to generate revenues and cash
2. Activity ratios		**b.** The ability of the firm to service interest or dividend payments
3. Assets		**c.** The ratio of a firm's current assets to its current liabilities; measure of liquidity
4. Balance sheet		**d.** An efficiency ratio that indicates how well or efficiently a business uses objects that have been purchased for long-term use to generate sales
5. Coverage ratios		**e.** A method for analyzing accounting data by comparing current financial data to previous reporting periods
6. Cross-sectional analysis		**f.** Amounts of money that are due to be paid to a seller from a buyer
7. Current assets		**g.** An indicator of the extent to which a firm's operations are funded by debt
8. Current liability		**h.** Financial statement that summarizes revenues and expenses for a period of time to determine profit or loss
9. Current ratio		**i.** Current assets excluding inventory divided by current liabilities; an indicator of liquidity
10. Debt ratio		**j.** A firm's net worth; the amount of money that individuals have invested in the firm; the sum of stock, paid-in capital, and retained earnings
11. Debt/net worth ratio		**k.** Ratio of revenues minus cost of goods sold to sales; percentage earnings on sales before considering operating expenses, interest, and taxes
12. Depreciation		**l.** A financial statement summarizing the amount of money that is coming into and going out of a firm
13. Fixed asset turnover		**m.** Ratio of operating income (EBIT) to interest expense; measure of the safety of a debt instrument
14. Gross profit margin		**n.** Ratio of sales to everything that a firm owns; a measure of the amount of assets that a firm has which is required to generate sales
15. Horizontal analysis		**o.** What an economic unit owes expressed in monetary terms
16. Income statement		**p.** The process of evaluating elements of a financial report as they relate to other pieces of information in the same report

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 130 10/12/2024 15:11

Term	Your Choice	Definition
17. Inventory		**q.** Short-term assets that are expected to be converted into cash during the fiscal year
18. Inventory turnover		**r.** What a firm has available to sell
19. Leverage ratios		**s.** Ratio of a firm's earnings to the total amount that it owns; a percentage earned on assets
20. Liabilities		**t.** A financial statement that enumerates (as of a point in time) what an economic unit owns and owes and its net worth
21. Liquidity ratios		**u.** The speed with which the things that a firm has available to sell are sold
22. Long-term assets		**v.** A company's ability to pay off current debt obligations without securing external capital
23. Long-term liability		**w.** An evaluation of data about several firms in the same industry at a point in time
24. Profitability ratios		**x.** Debt that becomes due to be repaid after one year
25. Quick ratio (acid test)		**y.** A debt that must be paid during the fiscal year
26. Ratio analysis		**z.** The ratio of money owed to equity; money owed divided by equity
27. Receivables turnover		**za.** Items or property owned by a firm, household, or government and valued in monetary terms
28. Return on total assets		**zb.** The total amount of money owed divided by the total assets; the proportion of assets financed by money owed; a measure of financial leverage
29. Shareholders' equity		**zc.** A firm's ability to generate earnings relative to its revenue, operating costs, assets, or equity over time
30. Statement of cash flows		**zd.** The speed with which a firm is able to collect money that is owed
31. Times-interest-earned		**ze.** Evaluation of a firm's financial performance over a period of time
32. Time series analysis		**zf.** The process of allocating the cost of the fixed assets over a period of time
33. Total asset turnover		**zg.** A method for analyzing accounting data by reading down a single column in a financial statement and determining how each individual line items in the statement relates to another base figure in the report
34. Vertical analysis		**zh.** Assets that are expected to be held for more than a year, such as plant and equipment

KEY FORMULAS

Balance sheet equation: Total assets = Total liabilities + Total shareholders' equity

Income statement equation: Revenues – Expenses = Net income

$$\text{Earnings per share} = \frac{\text{Net earnings}}{\text{Number of shares outstanding}}$$

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

$$\text{Inventory turnover} = \frac{\text{Sales}}{\text{Average inventory}}$$

$$\text{Turnover in days} = \frac{\text{Number of days in a year}}{\text{Inventory turnover}}$$

$$\text{Receivables turnover} = \frac{\text{Annual sales}}{\text{Accounts receivable}}$$

$$\text{Fixed asset turnover} = \frac{\text{Sales}}{\text{Fixed assets}}$$

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

$$\text{Gross profit margin} = \frac{\text{Revenue} - \text{Cost of goods sold}}{\text{Revenue}}$$

$$\text{Return on total assets} = \frac{\text{Earnings after interest and taxes}}{\text{Total assets}}$$

$$\text{Debt/net worth ratio} = \frac{\text{Debt}}{\text{Equity}}$$

$$\text{Debt ratio} = \frac{\text{Debt}}{\text{Total assets}}$$

$$\text{Times interest earned} = \frac{\text{Earnings before interest and taxes}}{\text{Annual interest charges}}$$

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2026 - 1448

Business Finance reprint_1p.indb 132 10/12/2024 15:11

MINI CASE 3.1

Analyzing Performance Through Financial Reporting

Ali runs a large computing store. He is looking to expand the business and wants to analyze its financial performance to make the best use of the company's assets. His friend suggests he could start by compiling and analyzing financial statements for the business over the last few years. "My business is privately owned, so I don't have to publish financial reports," says Ali. "That may be true," his friend answers, "but it can be very useful for your own benefit to keep your records in check." Ali wonders which financial reports he should compile.

Task

1. List three types of financial statements discussed in this book that Ali could create to analyze the business.

2. How can analysis of financial statements help Ali in assessing and improving the financial efficiency of the business?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 133 10/12/2024 15:11

MINI CASE 3.2

Understanding the Balance Sheet

Abdullah is the finance manager of a large fruit and vegetable wholesaler that supplies fresh produce to cities in the Eastern Province. The company director has asked him to provide some basic information on the company's financial status. Abdullah has collated all the data into a simplified balance sheet.

Total assets	SAR 2,700,000
Total liabilities	SAR 1,600,000
Total shareholders' equity	SAR 1,200,000

The company director calls Abdullah to his office, explaining that something must be wrong with the data provided.

Task

1. Using your knowledge of balance sheets, explain why the company director has questioned the data provided by Abdullah.

2. Suggest what actions Abdullah could take to resolve the issue.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 134 10/12/2024 15:11

MINI CASE 3.3

Using Ratio Analysis to Assess Company Performance

Mira is a young student who dreams of one day owning her own business. She has recently taken a course in Business Finance, and is interested in how ratio analysis can be used to gauge a company's performance. Mira applies the skills she has learnt by working out and analyzing ratios for existing businesses that would be her competitors. She has looked at the financial statements of a local company and noted that it has current assets of SAR 22,000, current liabilities of SAR 14,500 and inventory of SAR 8,000.

Task

1. Show how Mira would work out the current ratio and the quick ratio. Based on your analysis of the results, explain why it can be useful to analyze more than one type of ratio when assessing a company's financial health.

2. What additional information would Mira need in order to work out the company's gross profit margin?

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2026 - 1448

Business Finance reprint_1p.indb 135 10/12/2024 15:11

CASE STUDY: FINANCIAL REPORTING AT SAUDI ARAMCO

At time of writing, Saudi Aramco is the world's largest company by market cap, exceeding $2.3 trillion, having overtaken the American technology giant, Apple Inc., in May 2022. With its origins rooted in the burgeoning oil industry back in 1933, Saudi Aramco is a lynchpin of Saudi Arabia's economy. Since its establishment, the company has been central to the nation's economic growth and remains integral to Saudi Arabia's ongoing prosperity. Today, the company has a workforce of over 68,000 people.

Saudi Aramco is now playing a major part in restructuring the economy, enacting the reform goals outlined in Saudi Vision 2030 to move away from a chiefly oil-based economy. Until recently, the company was entirely state-owned, but is currently undergoing a major transformation, integral to Saudi Arabia's diversification strategy.

The Saudi government vowed to sell off shares in the company up to the value of 5%, with the revenue generated going back into a fund to invest in national projects to stimulate other parts of the economy. According to the official Saudi Vision 2030 statement: "We will develop further the sophistication of our investment vehicles, particularly after transferring the ownership of Aramco to the Public Investment Fund, which will become the largest sovereign wealth fund in the world."

Indeed, when Saudi Aramco was listed on the Saudi Exchange in December 2019, at 32 Riyals per share, it broke the world record as the largest ever IPO (initial public offering), previously set by the Alibaba Group in 2014. Initial shares of 1.5% raised a staggering $25.6 billion!

"We are determined to reinforce and diversify the capabilities of our economy," explains the Saudi Vision 2030 statement, "turning our key strengths into enabling tools for a fully diversified future. As such, we will transform Aramco from an oil-producing company into a global industrial conglomerate." This evolution is seeing Saudi Aramco increase its investment in sustainable and green energy, including a recently announced partnership with both King Abdullah University of Science and Technology (KAUST) and Hyundai Motor Group to research efficient fuel for hybrid cars.

Meanwhile, Saudi Aramco recently formed a strategic partnership with the Aston Martin Formula One racing team. This alignment with motorsport is indicative of Saudi Vision 2030's 'Daem' strategy to strengthen Saudi Arabia's presence in the entertainment and hospitality sectors.

Rules on disclosure of financial statements can vary across the globe depending on the nature of the company. Typically, private companies worldwide are often not obliged to reveal their reports, whereas publicly listed companies—by nature, accountable to their shareholders—are required to publish this information.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 136 10/12/2024 15:11

The Saudi Aramco website provides a wide range of insightful information and data on its financial reporting. Simple infographics present the headline figures at a glance, while a range of detailed downloadable reports enable closer analysis. The Annual Report 2021 contains a range of financial statements, including the consolidated statement of income, comprehensive balance sheet, and consolidated statement of changes in equity, all independently audited by the international accounting firm, PricewaterhouseCoopers. Of its 2021 year results, Saudi Aramco's President and CEO Amin H. Nasser said: "Our strong results are a testament to our financial discipline, flexibility through evolving market conditions, and steadfast focus on our long-term growth strategy."

While official financial reports are principally useful for the accounting and performance data they contain, they carry great value in contextualizing the results within the company's overarching strategy and the wider business environment. Saudi Aramco's ongoing transformation is reflected in the reporting, both in the data and tone of language. The Annual Report itself, for example, is titled 'Energy security for a sustainable world', which immediately highlights the company's strategic compass. The chairman's opening statement notes: "The Company remains at the forefront of enabling and enhancing the Kingdom's industrial, technology and sustainability infrastructure to help create new jobs and further diversify the domestic economy."

Study Questions

1. Which accounting standard does Saudi Aramco use for its financial reporting?

2. Describe three ratios that could be used to analyze Saudi Aramco's financial performance. Explain how each can provide a different insight.

Online Activity

Visit the Saudi Aramco webpage (www.aramco.com) to view or download the Annual Report 2021, which includes financial highlights. List five key pieces of financial information that you have discovered about the company, and explain how they are useful in analyzing its performance and strategic vision.

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2026 - 1448

Business Finance reprint_1p.indb 137 10/12/2024 15:11



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2026 - 1448

Part 2

Chapter 4 An Introduction to Financial Markets

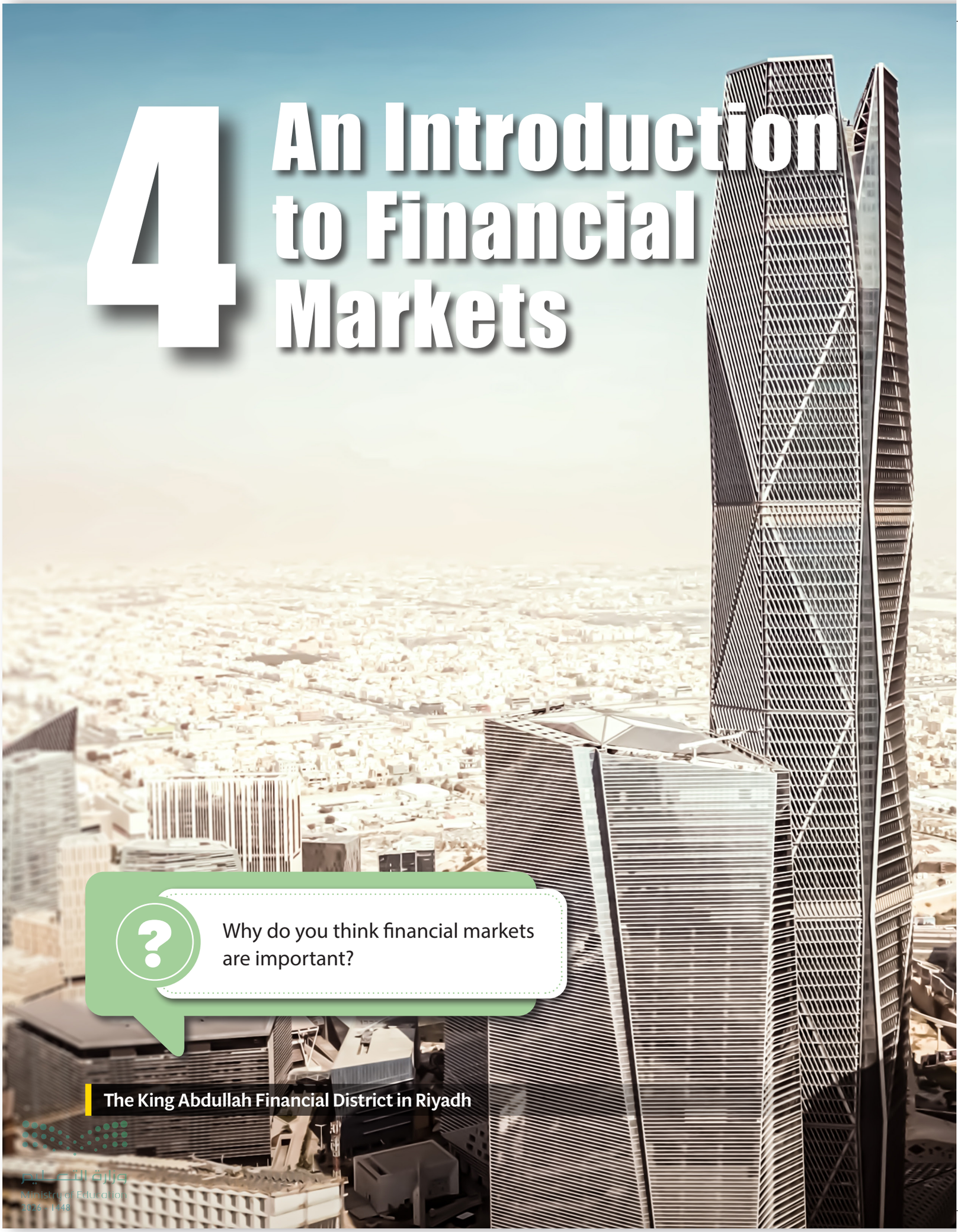
Chapter 5 Opportunity Costs and the Time Value of Money

Chapter 6 Risk and Its Measurements

Chapter 7 Stock and Bonds

Chapter 8 Cost of Capital

4 An Introduction to Financial Markets



Why do you think financial markets are important?

The King Abdullah Financial District in Riyadh

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LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Give an overview of financial markets and the security trading process.
2. Understand the mechanics of investing in securities.
3. Describe specialized securities including margin purchasing and short sales.
4. Explain different measures used to track security prices.
5. Explain alternative foreign securities.
6. Describe the impact of competition in securities markets.

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2026 - 1448

Business Finance reprint_1p.indb 141 10/12/2024 15:11

The Arabian Peninsula has been a center for trade since ancient times. These traders would take frankincense and myrrh to Roman markets by camel caravans along the Incense Route. Traders faced risks in purchasing in one market while transporting and selling in other markets. These markets were not regulated and investors faced the risk of loss. Nevertheless, trade required the exchange of money in different markets by negotiating exchange rates. Currency exchangers would make money on a spread, or the difference between their purchase price and their sales price.

Traders have always looked for ways to lower risks. One strategy is to share the risk of ownership across a number of investors. A company, or group of people who act as a single entity, can share risk by creating a corporation. This gives each person who invests in the corporation legal ownership represented by shares of stock. Because investors have stock ownership, they can buy and sell the shares in a secondary stock market.

To share the risk of international trade, in 1602 the Dutch East India Company became the first publicly traded company to sell stock and pay dividends to investors. In 1611, the Amsterdam Stock Exchange was created to facilitate the trading of the Dutch East India Company stock. Soon after, other international trading companies incorporated and traded their stocks in exchanges. Not all of these companies were successful, and many individuals lost their investments.

This chapter considers securities markets, with a focus on both international and Saudi Arabian stock markets. Financial markets will be explained along with the role of brokers and securities dealers, the mechanics of investing, measures of security pricing, and foreign securities. The chapter ends with a discussion of the efficient market hypothesis, which suggests that over a period of years few investors will outperform the market.



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2026 - 1448

Business Finance reprint_1p.indb 142 10/12/2024 15:11

4.1 Markets

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Key Terms

Stocks	Market maker
Bonds	Bid and ask prices
Sukuk	Spread

At its most basic economic definition, a market is the means through which goods and services are exchanged by buyers and sellers. A seller brings something to the market and bids a sales price. The buyer asks for a price from the seller. The buyer and the seller can negotiate directly or use an intermediary called a broker to arrange and negotiate the deal.

4.1a Securities Markets

Every day, trillions in Riyal are traded in stock exchanges around the world. These buyers and sellers never meet; instead, the securities markets are intermediaries, impersonally transferring the **stocks**, **bonds**, and **sukuk** from the sellers to the buyers. The transfers typically occur on an organized exchange such as the Saudi Exchange. The world's largest exchange is in the United States at the New York Stock Exchange (NYSE).

Stocks
The capital raised by a firm through the issue of shares, which also gives their holders ownership of the company

Bonds
A debt obligation issued by entities such as governments and businesses

Sukuk
A Shariah-compliant bond-like instrument used in Islamic finance representing a direct asset ownership interest

There certainly is no question that investing in securities involves the potential for loss. Without the possibility of loss, there would be no possibility of gain. Of all the financial institutions, the stock market may be the best known, but its purpose is often misunderstood. The primary function of a stock market is not to raise funds for firms, but to transfer securities from sellers to buyers. There is no net change in the number of securities in existence; no funds are transferred to firms. All that occurs is a transfer of ownership from the seller to the buyer.

The Saudi Stock Market started in 1932 with the first joint-stock company in the Kingdom of Saudi Arabia, the Arab Automobile Company. The Saudi Stock Market Exchange was established in 1985. A financial market exchange allows for the trading of securities. In 1990, the Saudi exchange started using an electronic system for the exchange of stock.

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2026 - 1448

Business Finance reprint_1p.indb 143 10/12/2024 15:11

In 2001, an advanced system of trading, settlement and clearing mechanisms (finalizing sales), the Saudi Tadawul exchange system, was introduced. Tadawul was restructured in 2007 as a joint stock company in accordance with Article 20 of the Capital Market Law where the exchange is the sole entity in Saudi Arabia authorized to act as a securities exchange. The vision of the Saudi Exchange is to be an integrated financial exchange that fosters the development of a diverse Saudi Arabian capital market and competes internationally. The Saudi Exchange's mission is to offer sound, efficient and attractive capital market products and services that deliver superior value to market participants and stakeholders.

The Saudi Exchange, or Tadawul, operates under the authority of the Saudi Arabian Capital Market Authority (CMA). The CMA sets rules for corporations that want to list on Saudi Arabian exchanges. In the United States, the Securities and Exchange Commission sets rules for companies in that country. Exchanges enforce rules for companies that want to trade on their exchanges. The CMA regulates the Saudi Capital Market by issuing required rules and regulations to implement provisions of Capital Market Law. The CMA regulations create an investment environment that boosts confidence of investors, reinforces transparency and disclosure standards in all listed companies, and protects investors and dealers from illegal acts in the market.

Many countries allow for over-the-counter (OTC) exchange markets. This allows smaller companies that may not meet major exchange requirements to sell securities, such as stocks, directly from a broker-dealer network instead of an investor purchasing from a centralized exchange. A broker does not actually sell stock but acts as an agent connecting sellers and buyers. Saudi Arabia has set up the Nomu Parallel Market providing an additional source of funding for issuers of security to access capital. Companies listed in the Nomu Parallel Market have modified and less stringent applications submitted to the Saudi Capital Market Authority (CMA) and the Saudi Exchange. This allows for a simpler and more flexible offering and listing process. While there are organizational differences between the exchanges from the perspective of a potential investor, they work in essentially the same way.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 144 10/12/2024 15:11

Saudi Vision 2030 has set goals for developing an advanced financial and capital market open to the world. This will allow greater funding opportunities in Saudi Arabia which will stimulate economic growth. To reach this goal, the Saudi Exchange system facilitates access to investing and trading in securities markets, easing the process of listing private Saudi Arabian companies and state-owned enterprises. Improvements in the exchange market have added liquidity (funding) to capital markets, strengthened debt markets, and opened additional investment opportunities.

Business Finance reprint_1p.indb 145 10/12/2024 15:11

4.1b Major Types of Traded Securities

It is important for both investors and financial managers to understand the major types of traded securities. Financial managers need to obtain capital from investors, while investors need to know where to place their investments to obtain the highest return given their risk tolerance.

There are two major types of traded securities, stocks, and bonds:

1. Stocks, or equity ownership through the holding of shares, have stock markets which are secondary markets that facilitate the transfer of existing securities among investors.
2. A bond is a debt obligation issued by entities such as governments and businesses.
   - **2.1** Governments issue bonds to finance their operations.
   - **2.2** Corporations issue corporate bonds to obtain assets.

Investors who buy bonds are making a loan to the entity issuing the bonds. These entities make a legal commitment to pay interest on the principal, or amount loaned, and in most cases return the principal when the bond comes due, or matures, at a specific date. Bonds can be discounted instead of paying interest. A discounted bond will sell for less than face value, or the money's actual value, but at maturity pays a specified return on investment. A bond's return is based on the entity's risk. Government bonds are considered to be the most secure, so have a lower required return. Businesses can have a bond rating. A business considered to be low risk will have a lower required return than a business considered to be higher risk. Figure 4.1 shows the relationship between risk and return.



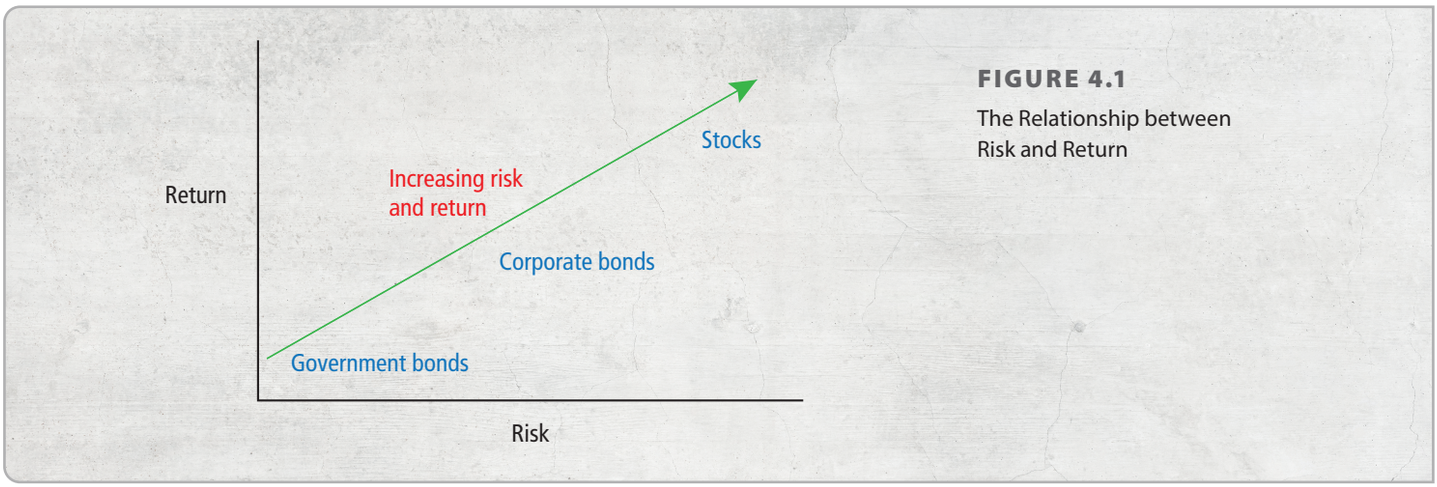

FIGURE 4.1
The Relationship between Risk and Return

The Saudi Exchange has a market for bonds and sukuk. A sukuk is a Shariah-compliant bond-like instrument used in Islamic finance. Bonds are typically an interest-bearing debt obligation. A sukuk is a direct asset ownership interest in the issuer of the sukuk. Like other investments, sukuk are traded in secondary markets.



Transferability of securities is extremely important

Financial managers want their securities in a secondary market where securities may be sold and converted into cash. This increases the willingness of investors to buy and hold stocks, bonds, and sukuk and thus increases the ability of firms to issue securities and raise capital. Without secondary markets, investors would be reluctant to buy the securities when a firm initially issued them.

Understanding exchange markets is vital for financial managers and investors

New business start-ups may want to offer stock through an initial public offering (IPO). Existing corporations may want to issue additional shares of stock, buy back shares of stock, issue bonds, or issue sukuk. Both businesses and individuals invest in markets to obtain the highest returns on their investments.

Why might a bond be issued, and why might an investor purchase it?



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 148 10/12/2024 15:11

4.1c Market Makers

Financial markets may have market makers (the securities dealer). Assume a seller wanted to sell a stock or other security, but no buyers want to buy that day. How low should the bid sales price go? Should it go to zero SAR? This would disrupt the market. Stock market makers help to ensure that a stock price remains in a range by buying and selling stocks and "making the market." A **market maker** is a dealer who engages in the business of buying and selling securities for their own account. Market makers work in a variety of equity markets including the bond markets. In most cases, market makers are dealers in large investment banks or other specialized trading companies. A "designated market maker", or DMM, supervises trading in a company's stock to ensure that trading (buying and selling) goes smoothly. If trading for that stock becomes volatile, the DMM would step in and buy or sell the securities for their own account. In effect, DMMs offer to buy securities from sellers and sell securities to buyers. Because they make a market in the security, an investor is able to buy and sell stocks and bonds. The Saudi Stock Exchange has set rules for Saudi market maker dealers to participate in the exchange.

Market maker
A dealer who engages in the business of buying and selling securities for their own account

EXAMPLE

For example, a market maker may be willing to purchase a stock at SAR 200 a share and sell it at SAR 210. The security is then quoted 200–210, which are the **bid and ask prices**. The market maker is willing to purchase at the bid price of a stock from a seller at SAR 200 and to sell, or ask, at SAR 210 a share for the stock to a buyer.

Bid and ask prices
Prices quoted by market makers at which they are willing to buy and sell securities

Market makers set specified prices at which they will buy and sell the security. The difference between the bid and the ask is the **spread**. The spread, like brokerage commissions (or the fee paid to the broker for carrying out the transaction), is part of the cost of investing. When someone wants to buy a security, the value of security offer is the bid price, but the price requested from a buyer is the ask price. The difference between the bid and the ask is a cost of obtaining the security. In some markets,

Spread
The difference between the bid and ask prices

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 149 10/12/2024 15:11

if there are several market makers for a particular security, this spread will be smaller due to competition between market makers. If there are only one or two market makers, the spread may be larger as a percentage of the bid price. For example, if a corporation had a bond issue, they may have multiple investment banks participate in the sales. These investment bank market makers would then compete for the sale of the bonds shrinking the spread. The spread is also affected by the volume of transactions in the security and the number of outstanding shares the firm has. If there is a large volume of transactions or the number of outstanding shares is large, then there is usually a larger number of market makers. This increased competition reduces the spread between the bid and the ask. If the number of outstanding shares is small, the spread is usually larger.

The New York Stock Exchange (NYSE), like many exchanges, has both a physical auction managed by human DMMs and completely automated auctions that include algorithmic computer-based quotes from DMMs and other market participants. Some exchanges, such as the Saudi Exchange, use only computer-based trading engines to determine an equilibrium price. All possible bid and ask matching orders are executed at the end of the auction day. The execution price is an auction-based bid and ask price at the market close and becomes the next day's reference, or starting, price.

Automated exchanges like the Saudi Exchange and NASDAQ use their auction engines to settle prices. This has greatly reduced the spread and therefore the retail commissions for market makers. At the same time, this has greatly increased the total amount of stock trades.

Figure 4.2 illustrates the exchange process. A buyer places a purchase order with a broker who is registered to buy and sell securities on an exchange. The broker places the ask price and number of shares to the exchange. The exchange market maker matches this ask request with a seller who has a bid price delivered through their broker. The bid-ask process will arrive at a settled price for the exchange of the securities.



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 150 10/12/2024 15:11

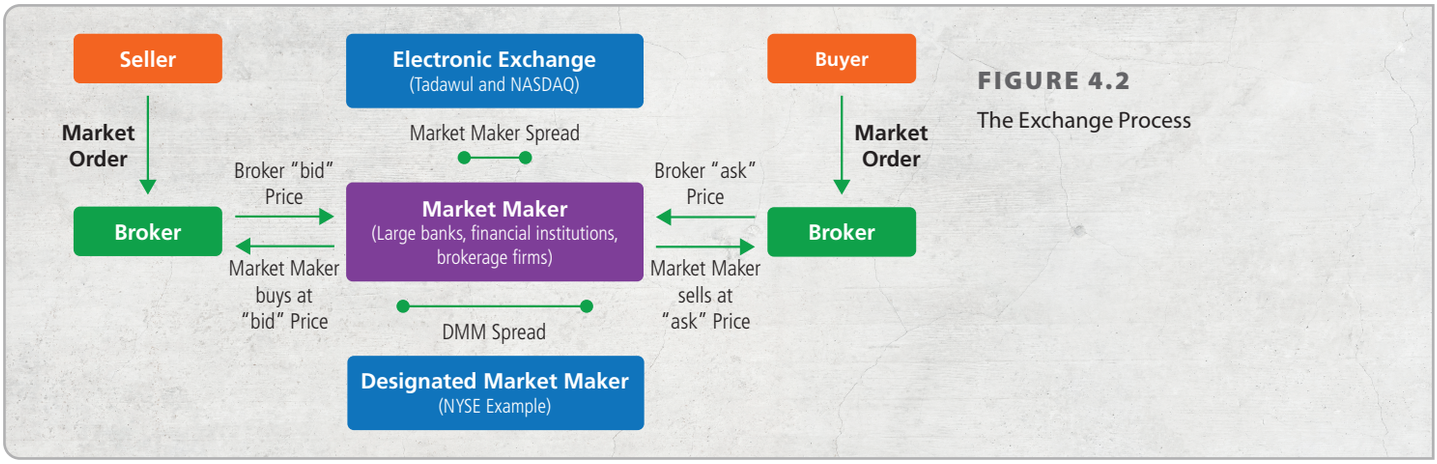

FIGURE 4.2
The Exchange Process

The spread is one source of the market makers' profits as they turn over the securities in their portfolios. As illustrated in Figure 4.2, the spread for electronic exchanges is much smaller than for exchanges that use DMMs. Market makers also profit when the prices of the securities rise, because the value of their inventory of securities also rises. Market makers also bear the risk if the value of any securities they hold were to fall. These profits are a necessary facet of securities markets, for the profits induce the market makers to serve the crucial function of buying and selling securities. These market makers guarantee to buy and sell at the prices they quote. Therefore, investors know what the securities are worth at a point in time and that there is a place to sell current security holdings or to purchase additional securities. For this service the market makers must be compensated, and this compensation is generated primarily through the spread between the bid and the ask.



Exercises

Choose the correct answer.

1. The primary function of a stock market is to raise funds for firms.

True / False

2. Organized securities markets are:

a. examples of commercial bank.
b. transferring money from savers to borrowers.
c. secondary markets.
d. not subject to regulation.

3. Under Saudi Capital Market Law, Tadawul is the sole entity in the KSA authorized to act as a securities exchange.

True / False

4. Tadawul sets rules for corporations that want to list on Saudi Arabian exchanges.

True / False

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2026 - 1448

Business Finance reprint_1p.indb 152 10/12/2024 15:12

4.2 The Mechanics of Investing in Securities

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Key Terms

Market order
Limit order
Day order
Good-till-canceled order
Good-till-date-order

Suppose an authorized investor wants to buy a stock of Saudi Aramco or Saudi Basic Industries Corporation. Companies listed on an exchange have a ticker symbol or trading name. In the Saudi Exchange, Saudi Aramco's trading name is SAUDI ARAMCO and Saudi Basic Industries Corporation's ticker symbol is SABIC. Both companies trade through the Saudi Exchange (TADAWUL), which advises potential investors to work with a member of the exchange, typically a broker, to open an investment portfolio. Authorized investors include Saudi Arabian citizens, companies, charitable institutions and associations, endowments, investment companies, public institutions, government funds, and other authorized persons to purchase stocks through the exchange.

4.2a Brokerage Mechanics

As shown previously in Figure 4.2, a buyer places a purchase order with a broker whose role is to buy and sell securities for customers through the exchange. The broker and the market maker (the securities dealer) should not be confused since they perform different but crucial roles in the mechanics of purchasing and selling securities. Brokers execute orders for customers. Securities dealers make a market; they buy and sell securities for their own accounts. Dealers bear the risk associated with their purchases and sales. Because brokers buy and sell for their customers' accounts, they do not bear the risk associated with fluctuations in securities prices. These risks are borne by the investors. Most brokers allow their retail, or personal account, clients to buy and sell online through a brokerage portal.

Order Types:

Market order
Instructions to buy or sell a security at the best current price

1. A **market order**: instructions to buy or sell a security at the best current price.
   A buyer can ask the broker to buy the security at the best price currently available, which is the asking price set by the market maker. Such a request is a market order. The investor is not assured of receiving the security at the currently quoted price, since that price may change by the time the order is executed. However, the order is generally executed at or very near the asking price.

Limit order
A direction given to a broker to buy or sell a security at a specific price

2. A **limit order**: a direction given to a broker to buy or sell a security at a specific price.
   A buyer may enter a limit order and specify a price below the current asking price and wait until the price declines to the specified level.

Orders Validity:

Day order
Order to buy or sell at a specified price that is canceled at the end of the day if it is not executed

Good-till-canceled order
Order to buy or sell at a specified price (limit price) that remains in effect until it is executed by the broker or canceled by the investor

The timing menu allows the order to be placed for one day (a **day order**) or the order may remain in effect indefinitely (a **good-till-canceled order**). Such an order remains in effect until it is either executed or canceled.

Once the purchase or sale has been made, the broker sends a confirmation statement notice of the exchange settlement. This confirmation gives the number of shares and type of security purchased or sold, the per unit price, and the total amount of the purchase or sale including the transaction fees, if any. Figure 4.3 illustrates the buying and selling menus used by online brokerages.

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2026 - 1448

Business Finance reprint_1p.indb 154 10/12/2024 15:12

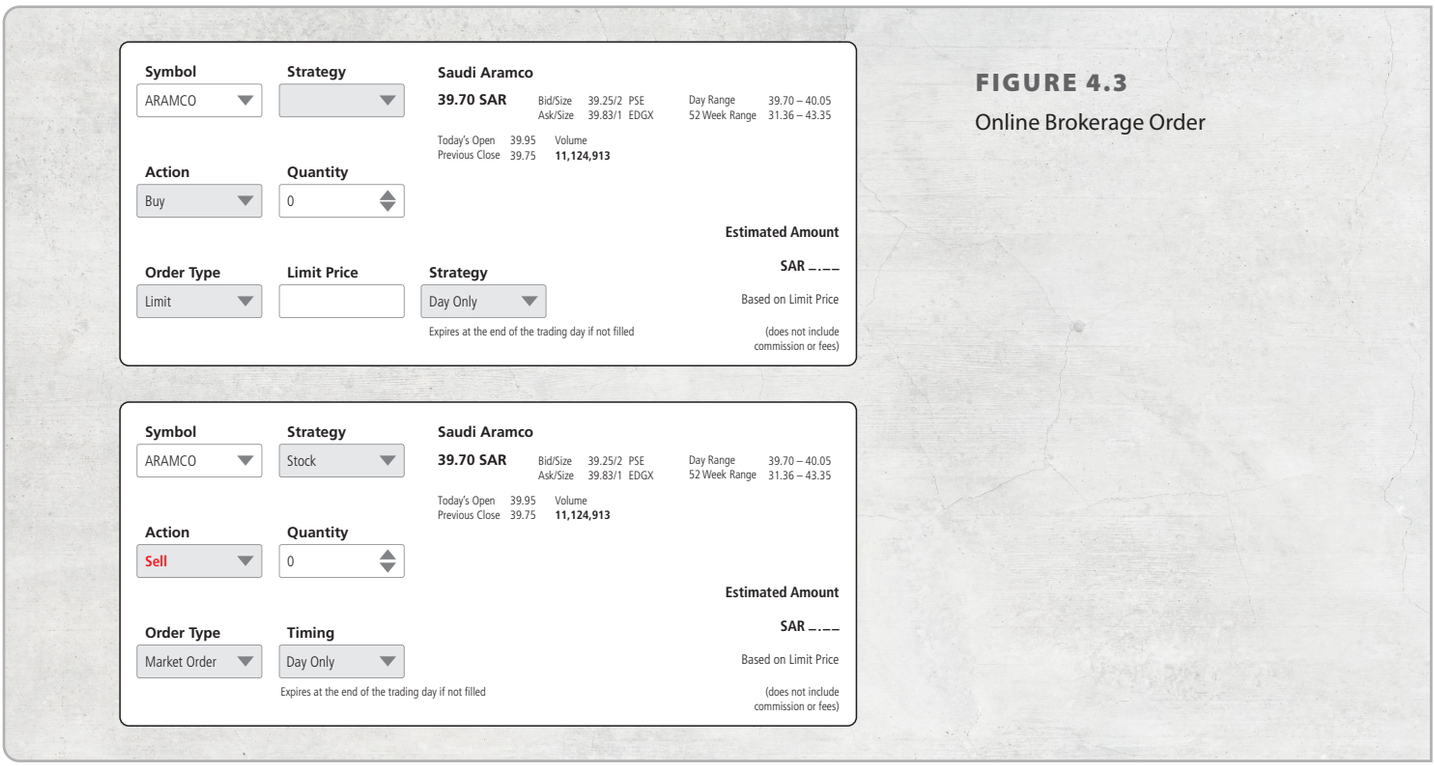

FIGURE 4.3
Online Brokerage Order

4.2b Trading on the Saudi Exchange

The Saudi Exchange (TADAWUL) has set specific rules for buying and selling securities through the exchange.

Investors need to open an investment account with a broker authorized to carry out the securities business on exchange. The investor needs to fill out the required application to buy or sell a specific stock. This could be through a form issued by the broker, online, or through a telephone authorization.

The most common orders available in the Saudi Exchange are "market orders" and "limit orders". The investor also can specify the duration of the validity of the order. The duration could be a "day order" or a "**good-till-date-order**".

Good-till-date order
An order to buy or sell that is active until a specific date

Exercises

Choose the correct answer.

1. A broker and a market maker (the securities dealer) perform the same roles in the mechanics of purchasing and selling securities.

True / False

2. The major transaction fee for a brokerage firm is the _____ .

a. commission
b. spread
c. ask
d. return

3. An order placed to be filled in one day is called a day order.

True / False

4. An investor placing a market order is assured of receiving the security at the currently quoted price.

True / False

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 156 10/12/2024 15:12

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4.3 Special Security Purchases

Key Terms

Margin
Margin requirement
Financial leverage
Long position
Short position
Derivatives
Futures contract
Mutual funds
Exchange-traded funds

There are a number of different types of market orders that can be made based on an exchange's rules. These include margin purchases, short sales, and derivatives.

4.3a Margin Purchases

Margin
An investor's equity in a security position

Investors can purchase securities on **margin**, which is buying the stock with a combination of the investors' cash and credit supplied by the broker. The phrase "on margin" can be confusing, since it is similar to buying "on credit." Margin is not the amount borrowed but is the investor's equity in the security. This amount is often expressed as a percentage:

$$\text{Margin} = \frac{\text{Equity}}{\text{Total value of portfolio}}$$

EXAMPLE

If an investor owns stock worth SAR 10,000 and borrows SAR 2,000 from the broker, the investor has SAR 8,000 of equity in the stock.

(The amount of equity in any investment is the total amount minus the borrowed amount.)

In this example, the equity is SAR 8,000 (SAR 10,000 – SAR 2,000) and the margin is:

$$80\% = \frac{\text{SAR } 8{,}000}{\text{SAR } 10{,}000}$$

Margin requirement
The percentage of a purchase price that must be paid up front when buying securities

The **margin requirement** is the percentage of a purchase price that must be paid up front when buying securities. Individual brokers may require more margin, or a higher level of equity. The minimum payment required of the investor is the value of the securities times the margin requirement.

EXAMPLE

If the price of 1 share is SAR 100 and 100 are purchased, the investment is SAR 10,000 (SAR 100 x 100 shares).

If the margin requirement is 60%, the investor must supply SAR 6,000 (10,000 x 60%) of cash equity to purchase the stock.

The other SAR 4,000 (SAR 10,000 – SAR 6,000) is borrowed from the broker.

The broker will have a fee for allowing the investor to purchase on margin using the broker's funds. Investors use margin purchases to increase the potential return on the investment. The use of borrowed funds in return for agreeing to pay a fixed return or the use of debt financing is referred to as **financial leverage**.

Financial leverage
Use of borrowed funds in return for agreeing to pay a fixed return; use of debt financing

You Try It



Nora wants to purchase a stock on margin. Her broker will allow a 70% margin requirement. Nora wants to invest SAR 15,000 in the stock.

How much must Nora provide to make the purchase of the stock?

_____

_____

_____

_____

_____

How much will the broker loan for the purchase?

_____

_____

_____

_____

_____

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 158 10/12/2024 15:12

4.3b The Short Sale

When an investor purchases a stock and profits when its price rises and sustains a loss when its price declines, it is called a **long position**. However, a long position is not the only way an investor can profit from a stock. An investor can also earn a profit from a decline in the price of a stock by taking a **short position**. In a short sale, an investor will borrow stock and sell it at a later date. If the price declines, the investor buys back the stock and pays off the loan (that is, pays off the borrowed stock). The investor earns a profit because the stock is bought for less than it was sold (at the borrowed level).

Long position
The purchase of securities in anticipation of a price increase

Short position
The sale of borrowed securities in anticipation of a price decrease

EXAMPLE

Assume a stock is selling for SAR 500. Nora believes that the stock is overvalued and that the price will decline.

She borrows 1 share of the stock from a broker and sells this in the market for SAR 500.

Several weeks later, the stock price has declined and she is able to purchase the share back for SAR 350. She then returns this to the broker.

The profit on this trade is calculated by: Sale price - Purchase price

Nora makes a profit of SAR 150 (500 – 350 = 150).

However, if the stock price rises to SAR 650 before she can repurchase it, she will make a loss of SAR 150 (500 – 650 = -150).

You Try It



Nora believes a stock will decline in value, she borrows and sells a share for SAR 200.

Two weeks later, she repurchases the share for SAR 140.

What profit did she make from the transaction?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 159 10/12/2024 15:12

4.3c Other Securities

There are a number of other securities available on the Tadawul exchange market as well as exchanges around the world. Many of these are created by and used by professional investors and companies. These securities carry higher risk. **Derivatives** are contracts between two parties that take their price from the value of an underlying asset, such as stock, group of stocks (an index), or other measure. As the price of the underlying asset changes, so does the value of the derivative contract. One type of derivative is a **futures contract**. A futures contract is an agreement to buy or sell a commodity contract or security at some point in the months or years to come. Most commodities have "futures market contracts", such as the oil and gas market or grain markets. A chemical company may not want to face the market risk of rising oil and gas prices used in their production so they will purchase a futures contract to lock in a price for the commodity to be received in the future. If the price of the commodity rises, the company benefits. If the price drops in the future, the company will pay higher than market rates.

Derivatives
Contracts between two parties that take their price from the value of an underlying asset, such as stock, group of stocks (an index), or other measure

Futures contract
An agreement to buy or sell a commodity contract or security at some point in the months or years to come

Exchange-traded funds and mutual funds

Investors will often use exchange-traded funds or mutual funds as investment vehicles. **Mutual funds** are an assortment of securities developed by investment firms and offered to investors. These mutual funds can hold securities that match an overall market, an industry, or a portfolio of security investments (stocks and bonds). The mutual funds can be actively managed by the investment company, buying and selling securities as the market changes. They can also be passive or locked to a set of securities. **Exchange-traded funds**, or ETFs, are like mutual funds but are passive and trade like stocks. Like stocks, market makers provide bid and ask quotes to enhance liquidity for ETFs.

Mutual funds
An assortment of securities developed by investment firms and offered to investors

Exchange-traded funds
Like mutual funds but passive and traded like stocks

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2026 - 1448

Business Finance reprint_1p.indb 160 10/12/2024 15:12

Exercises

Answer the questions.

1. Ali wants to make two stock investments, one is a long position in stock A and one is a short position in stock B.

Stock A is currently priced at SAR 200 and Stock B is priced at SAR 100.

Ali takes a long position in 100 shares of Stock A and a short position in 100 shares of Stock B.

A month later, Stock A is priced at SAR 220 and Stock B is priced at SAR 80.

a. What is Ali's total gain/loss from the long position?

b. What is Ali's total gain/loss from the short position?

2. A futures contract is an agreement to buy or sell a commodity or security at some point in the future.

True / False

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4.4 Measures of Securities Prices

Key Term

Market capitalization-weighted index

Stock market exchanges have been one of the largest mechanisms of wealth creation for individuals around the world.

4.4a Market Downturns

Throughout the history of stock market investing across the world, there have been a number of market crashes or downturns. Famous crashes include the South Sea bubble of 1720 and the 1929 Wall Street crash. Despite downturns being a recurring theme of stock market investing globally, over the long-term stock markets have recovered and made good long-term investments. Crashes often follow a "bubble" or run up in prices and follow a similar pattern of irrational exuberance. Historically, the period after a crash has resulted in a period of strong investment performance for long-term investors, as the inexperienced investors cut their losses and sell when the market is low.

4.4b Market Index

There are a number of market indexes used in exchanges around the world. A market index tracks a set of securities showing trends in market performance. An index can show trends over time for a basket of securities in a market. An index could be calculated by the prices of all securities in the index or by a market capitalization-weighted index. A **market capitalization-weighted index** is the total value of all a firm's shares listed on the market on a day divided by the total value of all the shares the firm previously listed on the index. With this index companies with a higher market capitalization (most overall value) will receive a higher weighting and companies with a small market capitalization will have less of an impact on the performance of the index. Securities prices and related indexes fluctuate daily.

Market capitalization-weighted index

The total value of all a firm's shares listed on the market on a day divided by the total value of all the shares the firm previously listed on the index

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 162 10/12/2024 15:12

A number of market indices are used to measure the performance of Saudi securities:

1. The Tadawul All Share Index (TASI), measures the stock price of publicly traded companies on the Saudi Stock Exchange. The MSCI Tadawul 30 Index (SAR) was developed by the Morgan Stanley Capital International (MSCI) firm and the Saudi Exchange. This index includes the top 30 securities listed on the Saudi Main Equity Market.
2. The Parallel Market Capped Index (NomuC) uses a market capitalization-weighted calculation methodology but caps a threshold of 20% for any security to avoid a single security dominance on the Nomu Capped Index.
3. The TASI Islamic Index is a Shariah-compliant index. This index tracks the performance of companies listed as Shariah-compliant on the Saudi Exchange.
4. There are also indexes of subsets of the securities market. For example, the Saudi Exchange's website lists industry indexes based on the Global Industry Classification Standard (GICS). GICS is a common global industry classification standard, allowing investors to invest in specific industries such as energy, capital goods, consumer services, retailing, etc.

Figures 4.4A and 4.4B illustrate index market values changing over time.



FIGURE 4.4A

Figure 4.4A shows the increase in the market value of the TASI stocks. Note that the index moves up and down but has seen considerable growth since 2020. This is a 5-year chart and shows that the index has increased 74.15% over the last 5 years. These types of online charts allow for tracking over 1 day, 5 days, 1 month, 6 months, year to date (YTD), 5 years, and a maximum based on the historical data available which can be found on the TASI index of the Saudi exchange. This same type of information on individual stocks is available as well.

FIGURE 4.4B

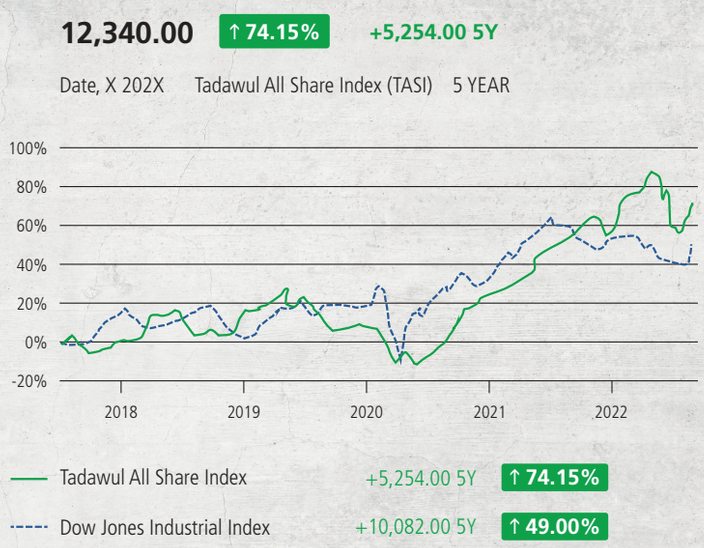

Figure 4.4B shows a comparison of two indexes, the TASI and the U.S. Dow Jones Industrial Average (DJI) index. Since these two indexes are based on different currencies, percent growth in the overall value is used. There is some general similar movement in these trends. A company's value reflects not only what happens within the firm or country, but also the larger impact of the global economy on a company's perceived value. While the TASI index increased 74.15% over the last 5 years, the DJI only increased 49.00% in the same period.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 164 10/12/2024 15:12

Exercises

Choose the correct answer.

1. Stock markets almost never drop in value.

True / False

2. A _____ _____ tracks a set of securities showing trends in market performance over time.

a. market tracker
b. market trader
c. market index
d. stock tracker

Business Finance reprint_1p.indb 165 10/12/2024 15:12

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4.5 Foreign Securities

Key Terms

Depositary receipts (DRs) Eurobonds

There are a vast number of securities in international markets. How investors access those securities depends upon the securities regulations in a country. For example, foreign securities cannot be listed on the Saudi Exchange. However, a Saudi citizen can purchase a Saudi developed mutual fund or ETF that focuses on international equity markets.

If a citizen of a country is able to transfer funds to foreign accounts and set up brokerage accounts in a foreign country, they can invest directly into that country. Brokerages can also have an international presence and can invest funds into foreign equities.

4.5a Depositary Receipts

A security authority, like the Capital Market Authority (CMA), sets the rules for securities that can be exchanged in a country. While the CMA can place reporting and other requirements for companies in Saudi Arabia that list on the Saudi Exchange, they have little control over the regulation of companies outside of Saudi Arabia. Investment banks and companies can set up **depositary receipts (DRs)**. These are receipts issued for foreign securities held by a trustee. The DR represents ownership of shares in a foreign market and can be purchased as an investment.

Depositary receipts (DRs)
Receipts issued for foreign securities held by a trustee

4.5b International Bonds

In addition to stocks, bonds sold in foreign countries are purchased internationally. There are three general types: (1) bonds issued by foreign firms; (2) bonds issued by foreign governments; and (3) bonds issued in foreign countries by international firms. Bonds issued by firms internationally depend on the currency in which they are denominated. A firm can sell bonds abroad denominated in the foreign currency or the firm can sell bonds denominated

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 166 10/12/2024 15:12

in the home currency (for example, Saudi SAR). These are called **Eurobonds** but this is not related to Europe. When a Saudi Arabian firm issues a Eurobond, it promises to make payments in SAR. In this case, a Saudi investor will not have to convert the payments from the country currency where the bonds are issued (such as British pounds) back into SAR.

Eurobonds
Bonds sold in a foreign country but denominated in the currency of the issuing firm

Exercises

Choose the correct answer.

1. Which of the following are true of depositary receipts (DR):

a. Investment banks and companies can set up depositary receipts (DR).

b. DRs are denominated negotiable instruments issued by a depositary bank in the local currency.

c. A DR represents ownership of shares in a foreign market and can be purchased as an investment.

d. All are true.

2. A bond sold in a foreign country but denominated in the currency of the issuing firm is called a(n):

a. Exchange bond.

b. Transnational bond.

c. Eurobond.

d. Savings Eurobond.

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4.6 Competition in the Securities Markets

Key Terms

Efficient market hypothesis (EMH)
Overpriced
Underpriced
Market return
Insider trading

Countries, and the companies that operate in a country, depend upon equity markets to maintain and grow their economies. If equity markets are competitive and many informed participants can readily enter and exit equities, then a market becomes efficient. The Saudi Capital Market Authority attempts to create these market conditions by setting information regulations for companies that list on the Saudi Exchange. The Exchange provides performance information on equities, such as immediate market rates, daily results, and historical results and trends. The Exchange also provides educational information for investors to help them make good investment choices. This allows individuals to readily buy and sell securities, find information that is rapidly disseminated, and follow prices as they quickly change in reaction to changes in the economic and financial environment. The securities markets are among the most competitive markets in existence.

4.6a Efficient Market Hypothesis (EMH)

Efficient market hypothesis (EMH)
The theory that when new information comes into the market, it is immediately reflected in stock prices and, as a result, all stock prices are fair values

Competition among investors has led to an **efficient market hypothesis (EMH)**. The efficient market hypothesis asserts that securities markets are so competitive that the current price of a stock properly values the firm's future prospects — that is, the firm's future earnings and its dividends. If a firm's stock were perceived as undervalued, investors would rush to purchase it. This increase in demand would push up the price. The converse would occur if the stock were perceived as overvalued; investors would sell the stock and this increase in supply would cause the price to fall. Hence the current price is a true measure of the security's worth. Under EMH, security analysis

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 168 10/12/2024 15:12

by an individual investor designed to determine if a stock is **overpriced** (or costs more than its worth) or **underpriced** (or costs less than its worth) is futile because the stock is neither. The market has determined an equilibrium price.

An important implication of this theory of efficient markets is that an investor cannot consistently beat the **market return** (the amount of money that a firm gets back from the overall value of its equities). An investor will earn a return consistent with the market return and the amount of risk perceived in the investment. The efficient market hypothesis suggests that the probability of an investor outperforming the market over any extended period is very small. That does not mean that an investor cannot outperform (or underperform) the market during a short period of time. During a brief period, such as a year, some investors will earn a return that is higher than the return earned by the market. However, there is little chance that those individuals will be able to achieve superior results for an extended period of time (in other words, to outperform the market consistently). Some stock investors engage in day trading. These investors will buy and sell stocks continuously hoping to take advantage of small changes in stock prices.

Information that enters the market can have immediate effect on the price of equities. Future prices can change radically due to weather events, political changes, changes in competitive actions, or any number of other events. Stock prices for companies can go up or down based on information that enters the market. Professional traders monitor information streams and make decisions accordingly. There is considerable information to back the efficient market hypothesis and this strongly suggests that few individual investors will, over a period of time, outperform the market consistently.

One primary reason for the efficient market hypothesis is the speed with which securities prices adjust to new information. The hypothesis requires that prices adjust extremely rapidly as new information is disseminated. In the modern world of advanced communication, information is rapidly dispersed in the investment community. The market then adjusts securities prices in accordance with the impact of the news on the firm's future earnings and dividends. By the time that the individual investor has learned the information, securities prices probably will have already changed. Thus, the investor will not be able to profit from acting on the information.

Overpriced
An item that costs more than its worth

Underpriced
An item that costs less than its worth

Market return
The amount of money that a firm gets back from the overall value of the equities



How can professional traders react more quickly to price changes than other investors?

4.6b Insider Trading

Insider trading
A situation where someone who works for a firm, or has access to information about it, trades the firm's securities because they have confidential or non-public information about the firm

Because information is so important, there are laws against insider trading. **Insider trading** is a situation where someone who works for a firm, or has access to information about it, trades the firm's securities because they have confidential or non-public information about the firm. For example, if an insider knew that a company was going to release information that would greatly lower the stock price, the insider could sell their stock in the company or short sell the company's stock. Insider trading is considered to be a criminal activity in most countries, including the Kingdom of Saudi Arabia.

If the markets were inefficient and prices did not adjust rapidly, some investors would be able to adjust their holdings and take advantage of differences in investors' knowledge. If some investors, such as insiders, knew that the acquisition would be announced but others would not, the insider could buy stock from those who were not informed. The price then could rise over a period of time as the knowledgeable buyers accepted progressively higher prices in order to buy the stock. Of course,

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 170 10/12/2024 15:12

if a sufficient number of investors had learned quickly, the price increase would be rapid as these investors adjusted their valuations of the stock in accordance with the new information. Government decisions can impact markets. To avoid giving some investors advantages, specific announcement times for the release of government information is announced to the public.

Exercises

Choose the correct answer.

1. The Saudi Capital Market Authority attempts to create competitive market conditions by setting information regulations for companies that list on the Tadawul exchange.

True / False

2. In an efficient market, security prices:

a. adjust rapidly to new information.
b. adjust slowly to new information.
c. poorly value a firm's future prospects.
d. indicate that the firm is overvalued.

Chapter 4 Assessment

SUMMARY

Securities are traded on organized exchanges, such as the Saudi Exchange. Securities are bought through brokers, who buy and sell for their customers' accounts. The brokers submit orders for the securities to market maker dealers, who "make markets" in them. These market makers offer to buy and sell at specified prices (quotes), which are called the bid and the ask prices. Brokers and investors obtain these prices through electronic systems that transmit the quotes from the various dealers.

After securities are purchased, investors must pay for them with either cash or a combination of cash and borrowed funds. When investors use borrowed funds, they are buying on margin.

Investors may establish long or short positions. With a long position, investors purchase stock in anticipation of its price rising. If the price of the stock rises, investors may sell it for a profit. With a short position, investors sell borrowed stock in anticipation of its price declining. If the price of the stock falls, investors may repurchase the stock at the lower price and return it to the lender. The position generates a profit if the selling price exceeds the purchase price.

Both the long and short positions are the logical outcomes of securities analysis. If the investor thinks a stock is underpriced, a long position (purchase of the stock) should be established. If an investor believes a stock is overvalued, a short position (the sale of borrowed securities) is established. In either case, if the investor is correct, the position will generate a profit. Either position may, however, generate a loss if prices move against the investor's expected price change.

Investors may purchase securities issued by foreign firms. This is usually accomplished through the purchase of depositary receipts, or DRs, which are issued by financial institutions and represent the foreign securities. Investors may also acquire securities such as Eurobonds—debt instruments issued abroad by firms that are denominated in the firm's currency instead of the foreign currency.

Securities markets are very competitive and efficient. New information is disseminated rapidly, and prices adjust quickly in response to the new information. The efficient market hypothesis suggests that few investors will be able to outperform the market over an extended period of time. Although an investor may outperform (or underperform) the market for a given period, consistently superior returns may be impossible to achieve.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 172 10/12/2024 15:12

QUESTIONS

1. Explain what a bid-ask spread is. Which price would you pay if you are purchasing a stock? Which would you receive if you were selling a stock?

2. Explain the role of brokers in modern stock markets. Why are they important?

3. Contrast long and short positions in stocks.

4. Illustrate the mechanics of a short sale.

5. List several market indices used to measure the performance of Saudi securities.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 173 10/12/2024 15:12

6. Determine how Depositary Receipts (DRs) facilitate trading in foreign securities.

7. Explain why an investor should not expect to outperform the market on a consistent basis.

EXERCISES

1. You purchase 100 shares for SAR 500 a share (SAR 50,000), and after a year the price rises to SAR 600. What will be the return on your investment if you bought the stock on margin and the margin requirement was:
   a. 25%?
   b. 50%?
   c. 75%?

2. Repeat Problem 1 to determine the return on your investment, but in this case suppose the price of the stock falls to SAR 400 per share. What generalization can be inferred from your answers to Questions 1 and 2?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 174 10/12/2024 15:12

3. A stock is currently selling for SAR 45 a share. What is the gain or loss on the following transactions?

a. You take a long position and the stock's price declines to SAR 41.50.

b. You sell the stock short and the price declines to SAR 41.50.

c. You take a long position and the price rises to SAR 54.

d. You sell the stock short and the price rises to SAR 54.

4. A sophisticated investor, Nasira, wanted to engage in a short sale. Nasira borrowed from a broker 500 shares of a green energy company and sold the stock at SAR 20 a share. The price of the stock subsequently fell to SAR 15 at which time Nasira covered the position (that is, closed the short position by buying 500 shares at SAR 15 a share and returning those to the broker). What was the amount of profit or loss on this short sale?

5. Abdullah purchased 200 shares of a pharmaceutical company for SAR 25 on margin. The margin requirement was 40%. How much does Abdullah need to provide to make the purchase of the shares?

Business Finance reprint_1p.indb 175 10/12/2024 15:12

6. Thana buys 100 shares of a software company, DEM, at SAR 35 a share and 200 shares of GOP at SAR 40 a share. She buys on margin.
   a. If the margin requirement is 50%, what is the maximum amount she can borrow?
   b. If the margin requirement is 70%, what is the maximum amount she can borrow?

7. After an analysis of an electronics store, Omar has concluded that the firm will face financial difficulty within a year. The stock is currently selling for SAR 50 and Omar wants to sell it short. If he does, what is the return he will receive if the stock price drops to SAR 10?

8. Lina buys stock on margin at SAR 20 per share. The margin requirement is 50%. What is the amount that Lina should provide to make the purchase of this stock?

9. Ali sells short 1 stock which is currently priced at SAR 20. He is able to repurchase it for SAR 16. What return does he make?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 176 10/12/2024 15:12

10. Nawaf sells short 100 shares of a stock priced at SAR 50. He repurchases them for SAR 53 each. What return does he make?

ASSESSMENT QUESTIONS

Choose the correct answer.

1. The Tadawul Exchange:

a. is a financial intermediary.
b. is a secondary market.
c. transfers funds to businesses.
d. forbids buying stock on margin.

2. The major types of traded securities on the Tadawul exchange are:

a. stocks only.
b. bonds only.
c. stocks, bonds and sukuk.
d. stocks and bonds.

3. Available exchange orders in the Tadawul exchange include:

a. hit order.
b. take order.
c. market order.
d. all of the above.

4. The use of borrowed funds to magnify the investor's return is referred to as financial leverage.

True / False

5. Buying stock on margin 1. is an example of financial leverage, 2. is buying stock with borrowed funds, 3. requires leaving the stock with the broker.

a. 1 and 2
b. 1 and 3
c. 2 and 3
d. 1, 2, and 3

6. If the margin requirement is 65% and the investment is SAR 10,000, the investor must supply how much in cash?

a. SAR 3,500
b. SAR 6,500
c. SAR 10,000
d. The answer cannot be determined from this information.

7. An investor can also earn a profit from a decline in the price of a stock by taking a:
   - **a.** long position.
   - **b.** short position.
   - **c.** declining position.
   - **d.** parallel position.

8. The MSCI Tadawul 30 measures the stock price of publicly traded companies on the Saudi Stock Exchange.

   True / False

9. Foreign securities can be listed on the Tadawul exchange.

   True / False

10. The CMA can place reporting and other requirements for companies outside of Saudi Arabia.

    True / False

11. Stock prices tend to adjust rapidly to new information.

    True / False

12. It is impossible for a trader to beat the market in the short term.

    True / False

13. When someone trades a company's securities because they have confidential or non-public information about the company, they are engaging in:
    - **a.** insider trading.
    - **b.** co-conspiracy trading.
    - **c.** security trading.
    - **d.** non-competitive trading.

14. The efficient market hypothesis:
    - **a.** suggests that the market for securities is becoming less efficient.
    - **b.** implies that investors can consistently outperform the market.
    - **c.** is built upon competition and the rapid dissemination of information.
    - **d.** suggests that security prices change slowly over time.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 178 10/12/2024 15:12

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your Choice	Definition
1. Bid and ask prices		**a.** The theory that when new information comes into the market, it is immediately reflected in stock prices and, as a result, all stock prices are fair values
2. Bonds		**b.** The percentage of a purchase price that must be paid up front when buying securities
3. Day order		**c.** A dealer who engages in the business of buying and selling securities for their own account
4. Depositary receipts (DRs)		**d.** Contracts between two parties that take their price from the value of an underlying asset, such as stock, group of stocks (an index), or other measure
5. Derivatives		**e.** The use of borrowed funds in return for agreeing to pay a fixed return; use of debt financing
6. Efficient market hypothesis (EMH)		**f.** An order to buy or sell that is active until a specific date
7. Eurobonds		**g.** An investor's equity in a security position
8. Exchange-traded funds		**h.** The total value of all a firm's shares listed on the market on a day divided by the total value of all the shares the firm previously listed on the index
9. Financial leverage		**i.** An item that costs more than its worth
10. Futures contract		**j.** The difference between the bid and ask prices
11. Good-till-canceled order		**k.** Like mutual funds, but passive and traded like stocks
12. Good-till-date order		**l.** An item that costs less than its worth
13. Insider trading		**m.** A Shariah-compliant bond-like instrument used in Islamic finance representing a direct asset ownership interest
14. Limit order		**n.** Order to buy or sell at a specified price (limit price) that remains in effect until it is executed by the broker or canceled by the investor
15. Long position		**o.** An assortment of securities developed by investment firms and offered to investors
16. Margin		**p.** The capital raised by a firm through the issue of shares, which also gives their holders ownership of the company
17. Margin requirement		**q.** The sale of borrowed securities in anticipation of a price decrease

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 179 10/12/2024 15:12

Term	Your Choice	Definition
18. Market capitalization-weighted index		**r.** Prices quoted by market makers at which they are willing to buy and sell securities
19. Market maker		**s.** The purchase of securities in anticipation of a price increase
20. Market order		**t.** An agreement to buy or sell a commodity contract or security at some point in the months or years to come
21. Market return		**u.** Order to buy or sell at a specified price that is canceled at the end of the day if it is not executed
22. Mutual funds		**v.** A direction given to a broker to buy or sell a security at a specific price
23. Overpriced		**w.** A situation where someone who works for a firm, or has access to information about it, trades the firm's securities because they have confidential or non-public information about the firm
24. Short position		**x.** Instructions to buy or sell a security at the best current price
25. Spread		**y.** Receipts issued for foreign securities held by a trustee
26. Stocks		**z.** Bonds sold in a foreign country but denominated in the currency of the issuing firm
27. Sukuk		**za.** The amount of money that a firm gets back from the overall value of its equities
28. Underpriced		**zb.** A debt obligation issued by entities such as governments and businesses

KEY FORMULAS

$$\text{Margin} = \frac{\text{Equity}}{\text{Total value of portfolio}}$$

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MINI CASE 4.1

Investment Decisions

Ali is new to investing and wants to set up a brokerage account. Ali has heard that investors have many options for investing. Ali wants to be prepared before he talks to a broker. He knows that he needs to understand the major investment options for individual investors. He also needs to understand the difference between the Tadawul exchange and the Nomu Parallel Market.

Task

1. Considering the information presented in this chapter, what are the investment options Ali has for his brokerage account?

2. Help Ali understand the difference between the Tadawul exchange and the Nomu Parallel Market by describing each market.

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2026 - 1448

Business Finance reprint_1p.indb 181 10/12/2024 15:12

MINI CASE 4.2

Efficient Market Hypothesis

Omer is convinced that he can beat the market by making short-term decisions in his investments. You are Omer's friend and you want to tell him that he needs to be careful because of the efficient market hypothesis (EMH). You decide to make a plan to explain the EMH to Omer.

Task

1. Define in your own words the efficient market hypothesis.

2. Use the efficient market hypothesis to explain why it is very difficult to beat the market.

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2026 - 1448

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MINI CASE 4.3

Long and Short Sales

Omer has heard that investors can make the most money in the fastest time by purchasing long and short sales. Omer is considering buying Company ABC stock at SAR 25 because he thinks it will rise to SAR 30 within a year. He is also considering selling CGQ short. CGQ currently sells for SAR 25, but Omer believes it will drop to SAR 20 within a year.

Task

1. Determine Omer's return on his investment in Company ABC, long position, if Omer buys at SAR 25 and the stock rises to SAR 30 within a year.

2. Determine Omer's return on his investment in CGQ using a short sale if he borrows a share of CGQ from his broker and sells this for SAR 25 and then purchases a share of CGQ for SAR 20 within a year to repay the broker (assume no related fees).

3. Justify which of these investment strategies you would recommend to Omer.

Business Finance reprint_1p.indb 183 10/12/2024 15:12

CASE STUDY: INVESTMENT STRATEGIES

Yasser, like many young Saudi professionals, is considering opening a brokerage account to both invest for retirement and to take advantage of the growing Saudi economy. Yasser is aware that under Saudi Vision 2030, small to medium-sized enterprises (SMEs) are expected to grow in the Saudi economy. Yasser is also looking to diversify his investments for his retirement by purchasing shares of stocks, investment funds, sukuk and bonds, and exchange-traded funds. Yasser also needs to understand the trading cycle and his purchase and sales options.

Yasser knows that his first stop for research is the Tadawul exchange website to use the Invest Wisely section of the Knowledge Center to learn how to invest wisely. Yasser has reviewed the table providing a comparison between financial instruments available in the Saudi capital market table. Yasser understands that there is a tradeoff between the risk of an investment and the expected return of an investment. Some of the investment options have higher risks and others have lower returns. Yasser doesn't know if he should invest in one area or develop a portfolio of multiple options.

The Invest Wisely website outlines common mistakes made when investing and how to avoid them. This sounds like good advice to Yasser but he isn't sure how much time he has to follow markets. The site also recommends strategies for using financial statements and ratios for evaluating companies, but he finds this confusing. The more Yasser reads, the more he thinks he will need professional advice to help him invest.

Yasser decides to find a brokerage firm authorized to work with the Saudi Arabian exchange. Yasser checks the Members Directory on the Tadawul website to find firms authorized by the Saudi Arabian Capital Market Authority to provide brokerage services in Saudi Arabia and finds a very long list.

Yasser identifies SNB Capital as the largest brokerage firm by trading volume with close to 18% market share in Saudi Arabia. SNB is also the largest Shariah-compliant asset manager globally. SNB Capital was founded in 2007 as the investment banking and asset management arm of the Saudi National Bank. This is a large bank-based brokerage company and Yasser thinks this may be the right fit for his investing strategy. SNB will allow Yasser to trade independently online, by phone, or with the help of a personal broker. SNB is registered for trading in Tier 1 countries such as the US and parts of Europe and Asia. SNB has an online trading platform, AlAhli Tadawul, which is designed to allow trading through an easy to control platform, with analytical tools to help make decisions. With the online platform Yasser can trade in the US stock market.

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2026 - 1448

Business Finance reprint_1p.indb 184 10/12/2024 15:12

Yasser has also found many other Saudi brokers in the Members Directory. He also looked at large international investment banking companies such as the US based Citi and Goldman Sachs, European companies Credit Suisse and Deutsche Securities, and Asian companies such as HSBC. He wonders if these may be too large to take care of his personal needs.

Yasser has a decision to make. He wants to have a brokerage account that will meet his needs in making long-term investments to support his retirement, but at the same time, he wants to invest in exciting growth opportunities.

Study Questions

1. Use the Invest Wisely website to make a recommendation on how Yasser should develop his financial plan.

2. List the reasons that Yasser should consider using a personal broker to help him invest.

Online Activity

Research a broker in Saudi Arabia other than SNB. Identify the services offered by this broker including the countries where someone can purchase equities. Identify the trading platform offered by this broker and list the advantages and disadvantages of using this broker.

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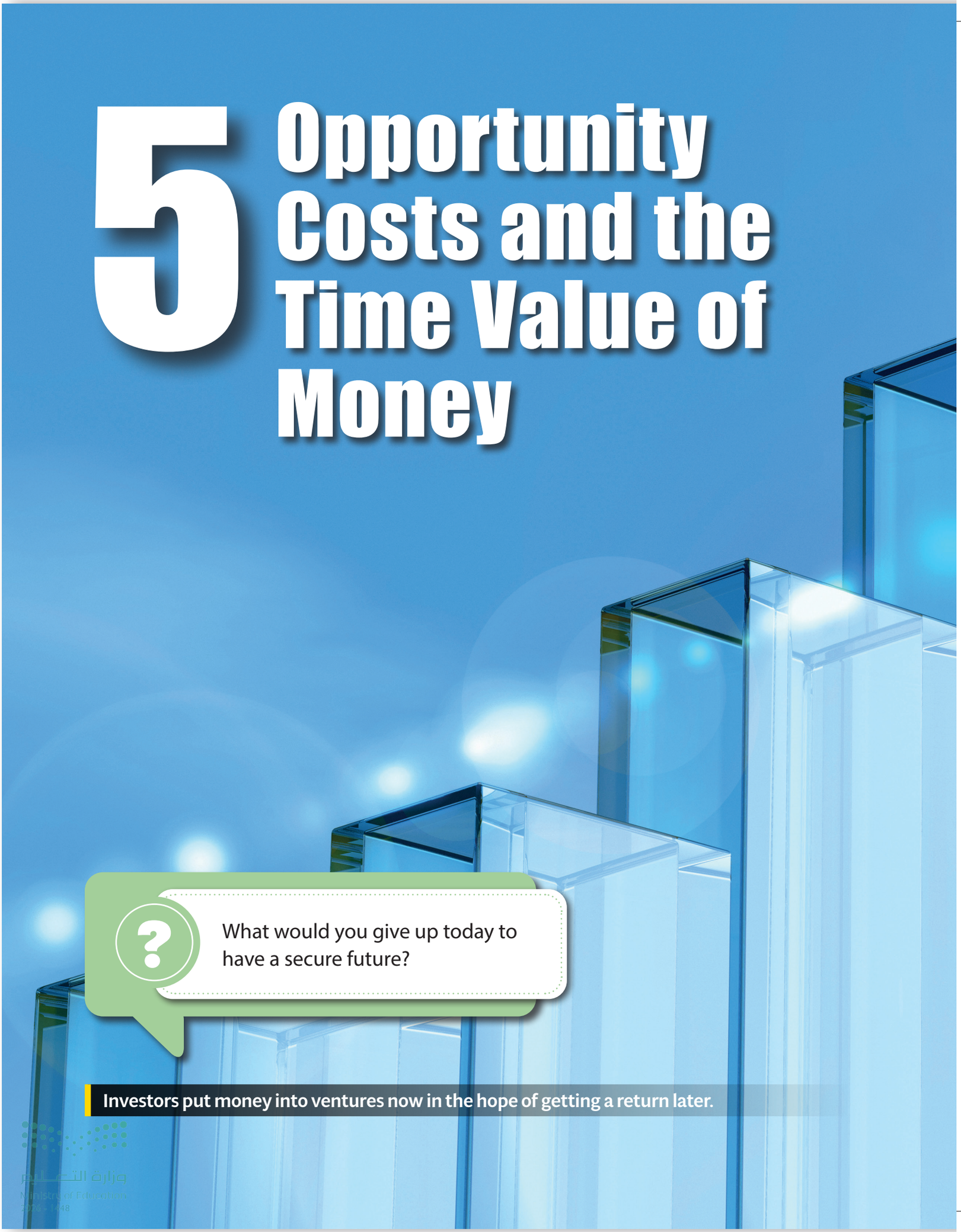
5 Opportunity Costs and the Time Value of Money



What would you give up today to have a secure future?

Investors put money into ventures now in the hope of getting a return later.

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LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Identify personal and financial opportunity costs.
2. Calculate the future value of a single amount.
3. Calculate the future value of a series of amounts (annuity).
4. Calculate the present value of a single amount.
5. Calculate the present value of a series of amounts (annuity).
6. Understand other time value of money situations.

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2026 - 1448

Business Finance reprint_1p.indb 187 10/12/2024 15:12

Key Terms

Compounding Discounting

The basis of the time value of money is money makes money, and a Riyal received in the future is not equal to a Riyal received today. The time value of money, which in many societies is based on an interest rate, is the cost of money borrowed or lent. Interest is a type of rent, the fee for using the money of someone else. The time value of money is based on the fact that a Riyal received today is worth more than a Riyal received later, because one Riyal received today can be saved and invested and will be worth more than a Riyal in the future. Similarly, a Riyal that will be received one year from today is currently worth less than a Riyal today.

The time value of money is a vital element of business and personal finance that can help you make decisions such as:

- "If I deposit SAR 6,000 today, how much will I have in five years?"
- "Will SAR 16,000 saved each year give me enough money when I retire?"
- "How much must I save today to have enough for my future education expenses?"

In addition to these personal financial decisions, the time value of money is used each day for business decisions. For example, if an investment in plant and equipment costs SAR 120,000,000 and creates an annual cash flow of SAR 18,210,000 for seven years, what is the investment's return? The cash outflow, or money leaving a business, is in the present, but the cash inflows, or money going into a business are in the future. Time value of money calculations equate these cash inflows and outflows to determine the return. Once the expected return is calculated, the financial manager will decide whether to proceed and make the investment. These types of business investments contribute to support the objectives of Saudi Vision 2030.

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2026 - 1448

Business Finance reprint_1p.indb 188 10/12/2024 15:12

The time value of money involves two major types:

1. Future value. With future value calculations, also called **compounding**, you are given an amount to save or invest, and you calculate the amount available at some future date.
2. Present value. With present value, calculated through a process called **discounting**, you are given the amount that will be available at some future date, and you calculate the current value based on a specific rate of return (See Figure 5.1).

Discounting
The process of determining the present value of a payment that is to be received in the future

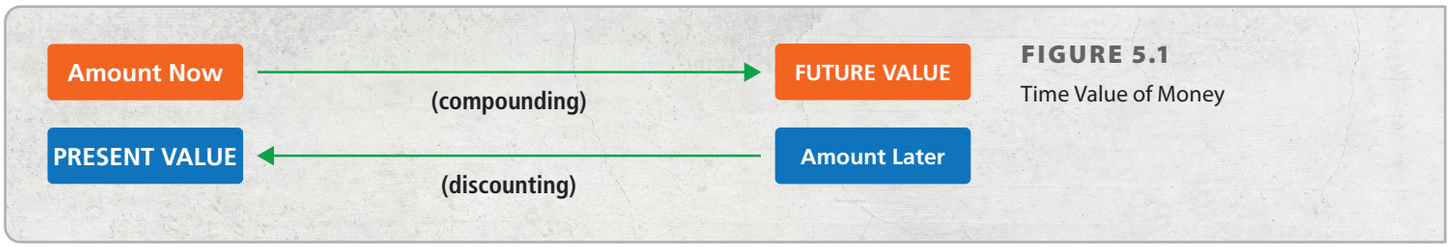

FIGURE 5.1
Time Value of Money

Time value of money refers to increases from earnings over time. With future value (compounding), the current amount grows to a greater future amount. Present value (discounting) determines the present amount that will grow to the desired future amount.

In this chapter, the four basic time value situations are discussed:

1. the future value of a single amount;
2. the future value of a series of amounts (an annuity);
3. the present value of a single amount; and
4. the present value of a series of amounts (an annuity).

Each situation is explained and illustrated using several calculation tools.

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5.1 Opportunity Costs

Key Terms

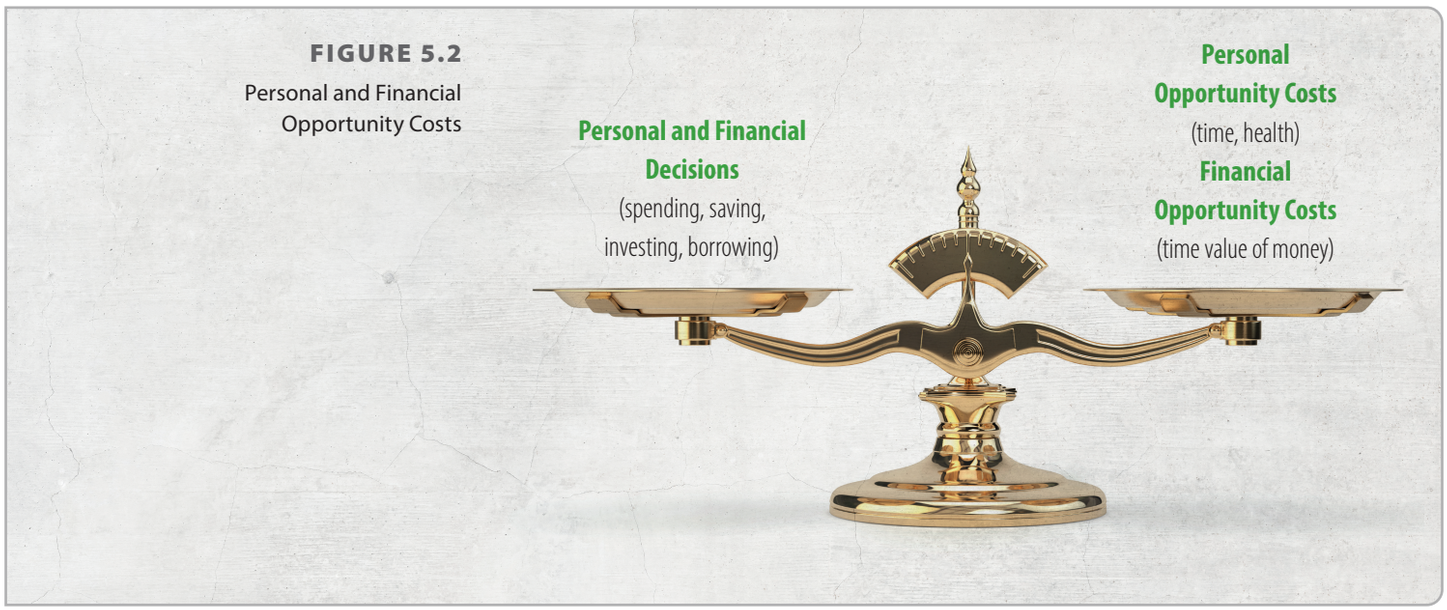
Opportunity cost

Time value of money

With every decision you make, you give up something. For example, money spent on an item gives up the opportunity to save or invest that money for the future. This tradeoff involved in every decision is commonly called **opportunity cost**, which is what a person gives up by making a choice. In other words, you sacrifice something (time or money) to obtain something else that you consider more desirable. The opportunity costs of your resources should be considered when making personal and financial decisions (see Figure 5.2).

Opportunity cost
What a person gives up by making a choice

FIGURE 5.2
Personal and Financial Opportunity Costs



5.1a Personal Opportunity Costs

Time is a commonly overlooked resource available to every person. A personal opportunity cost occurs when time used for one activity cannot be used for other activities. Time used for studying, working, or shopping will not be available for other uses. Like other resources, your time must be managed to achieve your personal goals and to satisfy your values.

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Business Finance reprint_1p.indb 190 10/12/2024 15:12

The health of a person is another possible personal opportunity cost. Eating unhealthy foods, not getting enough rest, or not exercising can result in illness, school absences, and higher medical expenses. Your personal resources (time, energy, health, abilities, knowledge), along with finances, require careful decision making.

5.1b Financial Opportunity Costs

Would you rather have SAR 100 today or SAR 105 a year from now? How about SAR 120 a year from now instead of SAR 100 today? Your choice will depend on current needs, future uncertainty, and current rates of earnings. If you wait to receive your money in the future, you want to be rewarded for the risk.

The **time value of money** calculates increases in an amount of money as a result of its earnings over time. Saving and investing a Riyal instead of spending it today results in a future amount greater than a Riyal.

Time value of money
Increases in an amount of money as a result of its earnings over time

Spending, saving, and investing money involves financial opportunity costs. Common examples include:

- Spending money from savings means lost future earnings; however, the purchase may have a higher priority than the earnings.
- Borrowing to make a purchase involves the opportunity cost of paying interest on the loan, but your current needs may make the tradeoff worthwhile.

The opportunity cost of the time value of money is also present in these financial decisions:

- Setting aside funds in a savings plan with little or no risk has the opportunity cost of potentially higher returns from an investment with greater risk.
- Making annual deposits in a retirement account can avoid the opportunity cost of having inadequate funds later in life.
- Purchasing a new automobile or home appliance has the potential benefit of saving money on future maintenance and energy costs.

5.1c Interest Calculations

Three amounts are required to calculate the time value of money for savings in the form of interest earned:

1. The amount of the savings (commonly called the principal).
2. The annual rate.
3. The length of time the money is on deposit.

These three items are multiplied to obtain the amount of simple interest. Simple interest is calculated as follows:

Amount in savings	×	Annual interest rate	×	Time period	=	Interest

EXAMPLE

Assume SAR 1,000 is invested today at 3% for a year. Calculate the amount of simple interest earned.

The simple interest earned = (SAR 1,000) × (0.03) × (1 year) = SAR 30.

You Try It



What would SAR 2,000 invested today at 4% for a year earn?

The increased value of money from interest earned involves two types of calculations:

1. Future value; the amount available at a later date.
2. Present value; the current value of an amount in the future.

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2026 - 1448

Business Finance reprint_1p.indb 192 10/12/2024 15:12

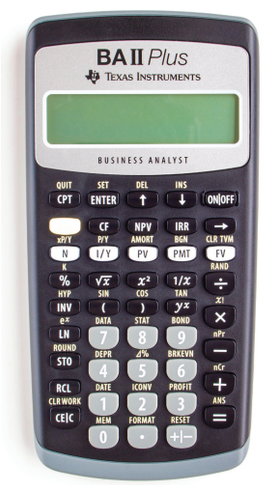
Four methods are available for calculating time value of money:

1. **Formulas:** Traditionally, math notations were used to compute future value and present value.
2. **Financial Calculators:** Specialized calculators with financial functions use appropriate keystrokes to perform future value and present value calculations.
3. **Spreadsheets:** Spreadsheet software has built-in financial formulas that include future value and present value calculations.
4. **Websites and apps:** Time-value-of-money calculators are available online and through mobile devices.

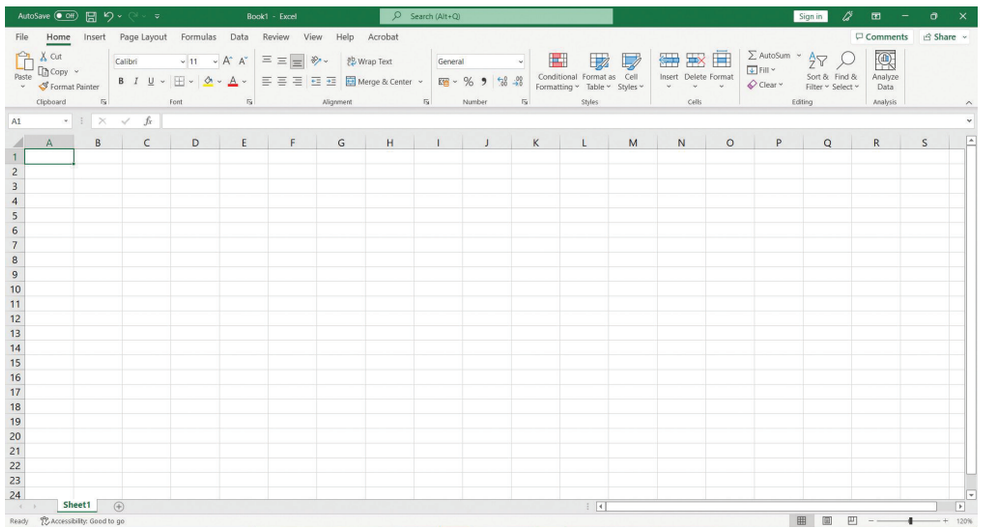
(**Note:** In this chapter, the four basic time value of money calculations are explained using the formula, financial calculator, and spreadsheet software methods. Different financial calculators may require slightly different keystrokes.)

Financial calculators generally have five special keys for calculating time value of money:

N	number of time periods
I	rate for the time period
PV	current amount (present value)
PMT	periodic payment (annuity)
FV	future amount (future value)



A financial calculator



Spreadsheet software

Exercises

Choose the correct answer.

1. Opportunity cost refers to what a person gives up when making a decision.

True / False

2. Which of these is **not** needed to calculate simple interest?

a. annual rate

b. length of time

c. currency exchange rate

d. amount of savings

3. If SAR 5,000 is invested at 3% for one year, what is the amount of simple interest earned?

a. SAR 100

b. SAR 120

c. SAR 150

d. SAR 180

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2026 - 1448

Business Finance reprint_1p.indb 194 10/12/2024 15:12

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5.2 The Future Value of a Single Amout

Key Terms

Future value

Compounding

Money deposited in an investment account will grow as a result of earnings paid to the investor. In various cultures these earnings are referred to as *interest* or *profit rate*, resulting in your savings increasing in value. **Future value** is the amount by which savings will increase based on a certain rate and over a certain time period.

Future value
The amount by which savings will increase based on a certain rate and over a certain time period

$$FV = PV\ (1 + i)^n$$

Where:

FV = Future value
PV = Present value
i = Interest rate
n = Number of time periods.

The future value of a single amount calculation may be used to:

- Determine the value of savings and investment at a later date.
- Grow money to achieve a financial goal.
- Set aside funds by a business to replace equipment or machinery in the future.

EXAMPLE

What is the future value of a SAR 100 deposited in a 4% account for one year?

Future value (FV) = $PV\ (1 + i)^n$

Future Value (FV) = SAR $100\ (1 + 0.04)^1$

Future Value (FV) = SAR 104

EXAMPLE

If you deposit SAR 1,000 in a 5% account at age 40, how much will you get at age 65? (invested for 25 years)

The future value (FV) will be = SAR 1,000 $(1 + 0.05)^{25}$

FV = SAR 3,386

What if you deposit the same amount of SAR 1,000 in the same 5% account at the early age of 25, how much will you get at age of 65 (invested for 40 years)?

The future value (FV) will be = SAR 1,000 $(1 + 0.05)^{40}$

FV = SAR 7,040

If you make deposits at age 25 rather than at age 40, the greater the future value will be. The same deposit made at the age of 25 would give an account balance of SAR 7,040 at age 65 due to the extra 15 years of compounding.

Compounding
The process by which earnings are based on the original amount as well as previous amounts earned

Earning interest on interest is called **compounding**. Money that is deposited in savings accounts is frequently referred to as being compounded because interest is earned on both the original amount and the previously earned interest. Compounding allows the future value of a deposit to grow faster than if interest were paid only on the original deposit. The sooner you make deposits, the greater the future value will be.

Why is it a benefit to let your savings compound?



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2026 - 1448

Business Finance reprint_1p.indb 196 10/12/2024 15:12

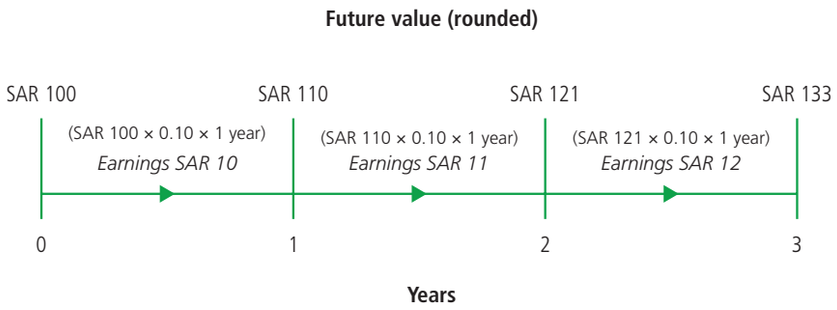
EXAMPLE

What is the future value of SAR 100 at 10% after three years?

There are three methods to solve this problem; 1. the formula method, 2. the financial calculator method; and 3. the spreadsheet method. Each will give the same answer.

Calculations involve the following elements:

FV = Future value
PV = Present value
i = Interest rate
n = Number of time periods



Calculation Methods

Using this same example (future value of SAR 100 at 10% after three years), the formula, financial calculator, and spreadsheet calculations are as follows:

Future Value of a Single Amount	Process, keystrokes	Calculation
Formula	$FV = PV(1 + i)^n$	$SAR\ 133 = SAR\ 100(1 + 0.10)^3$
Financial Calculator (**Note:** Different financial calculators may require slightly different keystrokes)	[PV], [I/Y], [N], [PMT], [CPT], [FV]	–100 [PV], 10 [I/Y], 3 [N], 0 [PMT], [CPT] [FV] 133
Spreadsheet	= FV (RATE, NPER, PMT, PV, TYPE)	= FV (0.1,3,0, –100,0) = 133

Note: Financial calculators and spreadsheet software may require you to enter amounts as negative numbers since these are viewed as cash *outflows*, money that is going into a savings account and investment. The result is a positive number, a cash *inflow*.

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2026 - 1448

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You Try It

Noor invests SAR 700 at 4% for seven years. What would the future value be?

_____

_____

_____

Sara invests SAR 1,000 in a 6% account for five years. What amount does she receive after five years?

_____

_____

_____

Ali starts two investment accounts, both with SAR 1,000. The first is a 5% account and the second is a 6% account. What is the difference between the account balances after five years?

_____

_____

_____

Exercises

Choose the correct answer.

1. Which of the following are needed to calculate the future value of an investment?

- **a.** the amount of savings?
- **b.** the annual rate?
- **c.** length of time the money is on deposit?
- **d.** all of the above?

2. What amount will be in an investment account after five years of earning 3% if the starting balance is SAR 100?

- **a.** SAR 114
- **b.** SAR 116
- **c.** SAR 118
- **d.** SAR 110



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2026 - 1448

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5.3 The Future Value of a Series of Amounts (Annuity)

Key Term

Annuity

Instead of a single amount, people often make regular deposits to an investment plan for savings goals or retirement. An **annuity** is a series of equal, annual payments with a constant rate of return. To determine the future value of these equal yearly deposits, the calculation is called *the future value of a series.*

Annuity
A series of equal, annual payments with a constant rate of return

$$\text{FV (annuity)} = \text{PMT} \times \frac{(1+i)^n - 1}{i}$$

Where

FV (annuity) = future value of annuity
PMT = payment per period
i = interest rate
n = number of payments

Common uses of the future value of a series of amounts include:

- A student/young professional saving a set amount each year for a future financial goal, such as future education costs or retirement.
- A young entrepreneur setting aside an amount each year to start a small business in four years.
- A business owner creating a fund with annual deposits to expand the company into other countries in the future.



What uses can you think of for the future value and present value calculations?

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2026 - 1448

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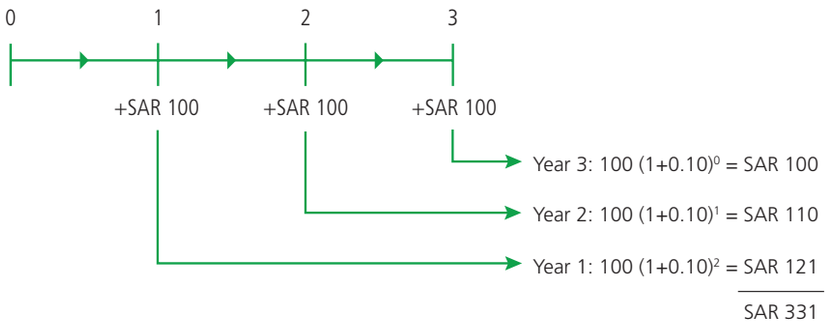
EXAMPLE

What is the future value of three SAR 100 deposits made at the end of each of the next three years, and earning 10% per year?



The future value of the series would be SAR 331 based on the total future values of the SAR 100 deposits.

The answer can be calculated using the formula, financial calculator, and spreadsheet calculations as shown in the table below:

Future Value of a Series of Amounts	Process, keystrokes	Calculation
Formula	$FV\ (annuity) = PMT \times \frac{(1+i)^n - 1}{i}$	$331 = 100 \times \frac{(1+0.10)^3 - 1}{0.10}$
Financial Calculator (**Note:** Different financial calculators may require slightly different keystrokes)	PMT, N, I/Y, PV, CPT FV	–100 PMT, 3 N, 10 I/Y, 0 PV, CPT FV 331
Spreadsheet	= FV (RATE, NPER, PMT, PV, TYPE)	= FV (0.1,3, –100,0,0) = 331

Remember, this example assumes that:

1. Each deposit is for the same amount.
2. The rate is the same for each time period.
3. The deposits are made at the end of each time period.

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You Try It



What amount would Sara have in five years if she invested SAR 1,200 each year at a rate of 3%?

Ali makes three annual deposits of SAR 500, each earning 5%. What is the future value of the investment?

Nora invests SAR 250 each year for six years into her investment account which earns her 6% per year. What is her total investment at the end of six years?

Exercises

Choose the correct answer.

1. Every series of deposits is an annuity.

True / False

2. The future value of a series of amounts may be used to calculate the future value of an annuity.

True / False

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5.4 The Present Value of a Single Amount

Key Term

Present value

Sometimes a person might want to know the amount to set aside today that will grow to an amount in the future. The calculations for time value of money may be used to determine the current value of an amount desired in the future. **Present value** is the current value of a future sum of money given a specified rate of return. Present value calculations, also called *discounting*, determine how much to deposit now to obtain a desired amount in the future.

Present value
The current value of a future sum of money given a specified rate of return

$$PV = \frac{FV}{(1 + i)^n}$$

Where:

FV = Future Value
PV = Present Value
i = Interest rate
n = Number of time periods

Present value calculations are often used by a business to determine the current worth of future cash flows from company operations. Other common uses of present value of a single amount include:

- Determining an amount to deposit today to achieve a certain financial goal in the future.
- Comparing different investments based on discounting the potential future returns.
- Discounting potential future cash flows of a business to decide if a new product would be profitable for the company.

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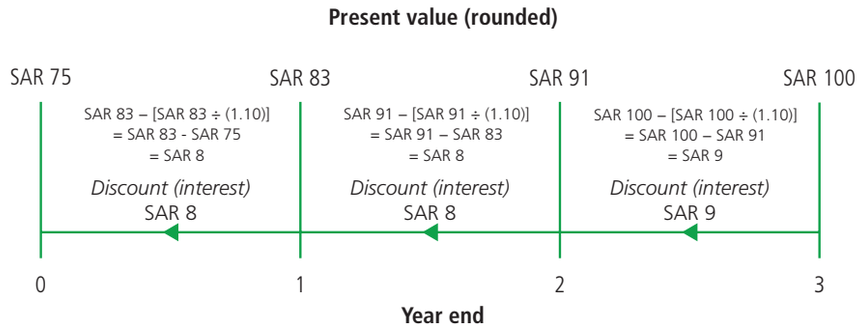
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 202 10/12/2024 15:12

EXAMPLE

What is the present value of SAR 100 to be received three years from now based on a 10% rate?



In this example, the calculation involves determining the present value of SAR 100 to be received three years from now based on 10%, which may be calculated as follows:

Present Value of a Single Amount	Process, keystrokes	Calculation
Formula	$PV = \frac{FV}{(1 + i)^n}$	$75 = \frac{100}{(1 + 0.10)^3}$
Financial Calculator (**Note:** Different financial calculators may require slightly different keystrokes)	FV, N, I/Y, PMT, CPT PV	100 FV, 3 N, 10 I/Y, 0 PMT, CPT PV – 75
Spreadsheet	= PV (RATE, NPER, PMT, PV, TYPE)	= PV (0.1,3,0, –100,0) = 75

You Try It



Khalid's goal is to have SAR 1,000 five years from now. If his investment earns 5%, what amount would he need to invest today?

Ali wants to have SAR 2,000 six years from now. If his investment account pays 4% per year, how much does he need to invest today?

Nora's goal is to have SAR 2,000 in four years time. She can either invest in an account which pays 4% or one that pays 5%. What is the difference between the present value amounts of the two accounts?

Exercises

Choose the correct answer.

1. A present value calculation is referred to as compounding.

   True / False

2. If you want to have SAR 5,000 in three years' time and your investment account earns 4% each year, how much do you have to deposit into your account now?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 204 10/12/2024 15:12

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5.5 The Present Value of a Series of Amounts (Annuity)

A person may wish to withdraw an amount each year for a certain number of years. To determine how much must be deposited now, the calculation involves *the present value of a series (annuity)*.

$$\text{PV (annuity)} = \text{PMT} \times \frac{1 - \frac{1}{(1 + i)^n}}{i}$$

Where:

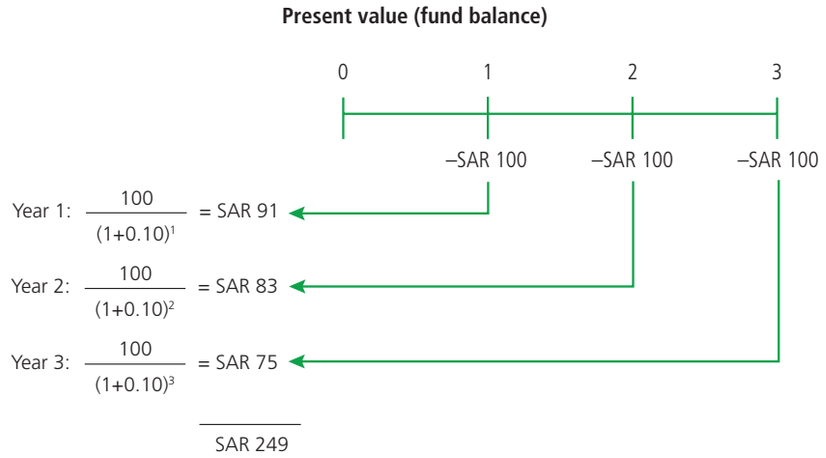
PV (annuity) = present value of annuity
PMT = payment per period
i = interest rate
n = number of payments

The present value of a series of amounts may be used for:

- Setting up a fund in which a person could withdraw funds, to cover living expenses while in school.
- Making a current deposit to withdraw funds each year to update a school's computers.
- Creating a company fund that would allow an amount to be withdrawn each year to provide employees with advanced training.

EXAMPLE

What is the present value of a SAR 100 withdrawal at the end of the next three years for money earning 10%?



The present value of a SAR 100 withdrawal at the end of the next three years would be SAR 249.

Using this same example, the calculations are as follows:

Present Value of a Series of Amounts	Process, keystrokes	Calculation
Formula	$PV\ (annuity) = PMT \times \frac{1 - \frac{1}{(1+i)^n}}{i}$	$249 = 100 \times \frac{1 - \frac{1}{(1+0.10)^3}}{0.10}$
Financial Calculator (**Note:** Different financial calculators may require slightly different keystrokes)	PMT, N, I/Y, FV, CPT PV	–100 PMT, 3 N, 10 I/Y, 0 FV, CPT PV 249
Spreadsheet	= PV (RATE, NPER, PMT, FV, TYPE)	= PV (0.1,3,–100,0,0) = 249

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 206 10/12/2024 15:12

You Try It



How much must Omer deposit today if he wants to take SAR 400 out of an investment account each year for nine years for money earning an annual rate of 8%?

If Ali needs to withdraw SAR 100 every year for five years from an account that earns 6%, how much does he need to invest now?

If Sara needs to withdraw SAR 250 every year for seven years and the account earns 7%, how much must she invest now?

Exercises

Choose the correct answer.

1. Present value of a series may be used by a person who wants to withdraw an amount each year for a certain number of years.

   True / False

2. The present value of a series requires calculating the amount set aside today to allow regular future withdrawals.

   True / False

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2026 - 1448

Business Finance reprint_1p.indb 208 10/12/2024 15:12

5.6 Other Time Value of Money Situations

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Key Term

Non-annual compounding

In addition to the four basic time value of money calculations, other situations exist related to future value and present value computations.

5.6a Uneven Amounts

A person may not deposit an equal amount each year. These uneven cash flows will require that you calculate amounts individually.

5.6b Time Periods of Less Than a Year

This chapter has only discussed time value of money activities involving full years, however, you will likely encounter situations consisting of less than a year.

5.6c Non-annual Compounding

Throughout the chapter, examples involved compounding that occurred only once a year. Compounding can and often does occur more frequently, such as twice a year (semi-annually) or every three months (quarterly). **Non-annual compounding** is payment of interest more frequently than once a year. In those situations, calculations need to be adjusted.

Non-annual compounding
Payment of interest more frequently than once a year

5.6d Loan Payments Calculations

In addition to using time value of money for saving and investing growth, these calculations can determine loan payments. When borrowing an amount for a certain time period at a certain rate, a financial calculator,

spreadsheet software, or an online app will allow you to compute the monthly repayment amount.

The steps for the loan payment are similar to other present value calculations. For example, if you borrow SAR 1,000 with a 6% rate to be repaid in three equal payments at the end of the next three years, the payments will be SAR 374. This is calculated as follows:

Present Value to Determine Loan Payments	Process, keystrokes	Calculation
Financial Calculator	PV, I/Y, N, FV, CPT, PMT	1000 PV, 6 I/Y, 3 N, 0 FV, CPT PMT 374
Spreadsheet	= PMT (RATE, NPER, PV, FV, TYPE)	= PMT (.06,3,1000,0,0) = 374

Exercises

Choose the correct answer.

1. Uneven amounts require individual calculations for the time value of money.

True / False

2. Earning interest more than once a year is called:

a. non-annual compounding.

b. annual compounding.

c. discounting.

d. an annuity.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 210 10/12/2024 15:12

Chapter 5 Assessment

SUMMARY

Every decision has an opportunity cost, which is what a person gives up by making a choice. Personal opportunity costs include your time and health. Financial opportunity costs can be measured in terms of monetary gains based on the time value of money. The increased value of money involves two types of calculations: future value and present value. The amount available at a later date is called the *future value*. In contrast, the current value of an amount in the future is the *present value*. Future value and present value calculations commonly involve two types of cash flows – a single amount and an *annuity*, which is a series of equal amounts. The annuity involves both a series of equal deposits or payments each year along with a constant rate of return. As shown in the table below, four basic variations of the time value of money exist.

Time Value of Money Summary	Single Amount	Series of Equal Amounts (annuity)
Future Value	Future value of a single amount	Future value of a series of amounts
Present Value	Present value of a single amount	Present value of a series of amounts

Other time value of money situations that vary from these four basic situations include uneven amounts each year, time periods of less than a year, and non-annual compounding. Finally, using a time value of money adaptation, present value calculations may be used to determine monthly loan payments when an amount is borrowed for a certain number of years at a certain rate.

QUESTIONS

1. Describe opportunity costs, or the value of what was lost when choosing between two or more options, you have encountered in your life.

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Business Finance reprint_1p.indb 211 10/12/2024 15:12

2. Explain the difference between *future value* and *present value*.

3. Explain how the frequency of compounding affects the growth of a person's money.

4. Describe a situation for which a person might use the future value of a series of amounts calculation.

5. In which situations would a present value calculation be used?

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2026 - 1448

Business Finance reprint_1p.indb 212 10/12/2024 15:12

6. For these situations, decide if the event is an example of a *future value* calculation or a *present value* calculation:

a. calculating the amount to deposit today to achieve an amount in the future;

b. determining the value of an investment that will grow over the next ten years;

c. investing SAR 50 a month for six years.

EXERCISES

1. Fatemah has invested SAR 6,000 with an annual rate of 2.5%. What would be the earnings on this amount?

2. Nora has invested SAR 850. What would be the future value in six years at an interest rate of 7%?

3. Saad plans to invest SAR 6,400 a year for the next six years, earning 4% interest. What would be the future value of this savings amount?

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2026 - 1448

Business Finance reprint_1p.indb 213 10/12/2024 15:12

4. Ibrahim invests SAR 6,000 a year into a retirement account. If these funds have an average earning of 9% over the 40 years until retirement, what will be the value of the retirement account?

5. If Layla hopes to have SAR 60,000 for a down payment for a house in five years, what amount would she need to invest today? Assume that the money will earn 5% interest.

6. Abdullah is planning to go to graduate school in a program of study that will take three years. He wants to have SAR 12,000 available each year for various school and living expenses. If he earns 4% interest on his money, how much must he deposit at the start of his studies to be able to withdraw SAR 12,000 a year for three years?

7. What amount would Mariam have to invest today to be able to take out SAR 800 a year for 10 years from an account earning 8% interest?

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2026 - 1448

Business Finance reprint_1p.indb 214 10/12/2024 15:12

8. What amount would Tala have to invest today at a 6% rate of interest to have SAR 1,000 five years from now?

ASSESSMENT QUESTIONS

Choose the correct answer.

1. Time used for recreation is considered to be a financial resource.

True / False

2. Interest is calculated by multiplying an amount of money times a rate times a length of time.

True / False

3. Future value is the amount to which current savings will grow based on a certain rate and a certain time period.

True / False

4. Earning interest on interest is called compounding.

True / False

5. When using a financial calculator, the rate is indicated by:

a. N

b. PMT

c. I

d. FV

6. The future value of a series of amounts would best be used for determining the value of:

a. an account with annual deposits.

b. loan payments.

c. an amount set aside for employee benefits.

d. changing foreign currency rates.

7. A present value of a savings account would be larger than the future value of that account.

   True / False

8. To determine the growth of an amount you would use the:

   a. present value of a series.

   b. future value of a series.

   c. future value of a single amount.

   d. present value of a single amount.

9. Time value of money calculations may be used to determine the amount of a loan payment.

   True / False

10. Compounding can only occur on an annual basis.

    True / False

11. If a person deposits SAR 150 in year 1, SAR 250 in year 2, and SAR 200 in year 3, this is referred to as:

    a. uneven amounts.

    b. time periods of less than a year.

    c. non-annual compounding.

    d. annual discounting.

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2026 - 1448

Business Finance reprint_1p.indb 216 10/12/2024 15:12

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your choice	Definition
1. Annuity		**a.** The process by which earnings are based on the original amount as well as previous amounts earned
2. Compounding		**b.** What a person gives up by making a choice
3. Discounting		**c.** The payment of interest more frequently than once a year
4. Future value		**d.** The current value of a future sum of money given a specified rate of return
5. Non-annual compounding		**e.** Increases in an amount of money as a result of its earnings over time
6. Opportunity cost		**f.** A series of equal, annual payments with a constant rate of return
7. Present value		**g.** The amount by which savings will increase based on a certain rate and over a certain time period
8. Time value of money		**h.** The process of determining the present value of a payment that is to be received in the future

KEY FORMULAS

Simple interest calculation	Simple interest = Principal × Rate of interest (annual) × Time (years)
Future value of a single amount	$FV = PV\ (1 + i)^n$
Future value of a series of amounts (annuity)	$FV\ (\text{annuity}) = PMT \times \dfrac{(1 + i)^n - 1}{i}$
Present value of a single amount	$PV = \dfrac{FV}{(1 + i)^n}$
Present value of a series of amounts (annuity)	$PV\ (\text{annuity}) = PMT \times \dfrac{1 - \dfrac{1}{(1 + i)^n}}{i}$

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 217 10/12/2024 15:12

MINI CASE 5.1

Time Value of Money for Investment Calculations

Asma is planning an investment program for her long-term saving. She plans to select various investments, including stocks, mutual funds, and real estate. Asma plans to deposit SAR 12,000 per year. She estimates an average annual return of 9% for the next 20 years. Asma will use time value of money calculations to determine the growth of her investment portfolio.

Task

1. What would be the future value of Asma's investment after 20 years?

2. Would you advise Asma to deposit the 12,000 once as a single amount at the beginning of the investment program or as an annuity at the end of each year? Explain your answer.

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2026 - 1448

Business Finance reprint_1p.indb 218 10/12/2024 15:12

MINI CASE 5.2

Time Value of Money and Personal Financial Decisions

Personal financial security is vital for the personal welfare and economic satisfaction of individuals and their families. Younis and his wife Ayesha have two children, ages six and eight. Their current home is too small for their growing children. They also want to save for their children's future education costs and their retirement. Personal financial goals can be measured with the use of time value of money (future value and present value).

Task

1. What financial goals do Younis and Ayesha need to set?

2. What do Younis and Ayesha need to start planning for from today, and how?

CASE STUDY: SELECTING A CAPITAL PROJECT

Should our company open a branch office in another country, or take a new product to market? This type of business decision is part of Saudi Vision 2030 to diversify the economy.

Every organization is dependent on capital assets for current operations and long-term success. Purchasing new equipment, constructing additional buildings and obtaining updated technology are examples of capital spending activities. The decision to purchase long-term assets such as machinery, computers, trucks, and machine tools can use a five-step process:

1. **Set Capital Spending Goals**: The capital projects of a company should be based on the organizational goals, which may include expanding sales, reducing costs, and increasing profits.
2. **Determine Potential Capital Projects**: After setting clear capital spending goals, different projects will be considered. For example, if providing customer service is a priority, spending for upgraded technology to answer customer questions may be appropriate. If improving distribution is a necessity, a new warehouse or additional delivery trucks might be considered.
3. **Forecast Cash Flows**: Next, managers must identify amounts of expected cash flows for the project. The two main sources of cash inflows are: (1) additional sales revenue, and (2) reduced operating expenses. Lower expenses create a positive cash flow since *money not going out is like money coming in*.
4. **Identify Rate and Risks**: Financing the capital project is the next step. A *discount rate* is used to calculate the present value of the future cash flows. Managers also assess potential risks, such as inflation, lower consumer spending, new government regulations and natural disasters. Risk is usually considered by using a higher discount rate to reflect potential risk.
5. **Select and Implement Project**: Finally, managers must decide which capital projects will be selected and how to put the projects into operation.

So, if a manager evaluated the two options (opening a branch office in another country, or taking a new product to market), here are example calculations they would use:

A. Opening a branch office in another country.
Cost = SAR 10,000,000
Average expected annual cash flows for the following 10 years
= SAR 2,100,000
Discount rate = 8%

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2026 - 1448

Business Finance reprint_1p.indb 220 10/12/2024 15:12

B. Taking a new product to market.
Cost = SAR 9,000,000
Average expected annual cash flows for the following 10 years
= SAR 1,900,000
Discount rate = 7%

As companies implement plans for Saudi Vision 2030, capital projects will be vital for business growth and expansion. Planning new products and services, selling in new markets, and updating technology for production and distribution are some of the capital spending decisions that will result in a more diverse economy.

Study Questions

1. What are the present values of the two options?

2. Comparing the present value of the two projects with their costs, which project will the company choose?

3. Which other factors should the company consider when deciding which project to select?

Online Activity

Several online calculators are available for computing time value of money. Locate an online present value calculator and complete the following tasks:

1. Describe the format and process presented for the online calculator.

2. Calculate the present value for the following situation: a six-year project with an expected annual cash flow of SAR 44,000 using a discount rate of 5%.

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2026 - 1448

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6 Risks and Its Measurements

What types of risks do firms usually face?

Many firms use surveillance cameras to ensure they are aware of any potential risks to their business.

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2026 - 1448



LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Explain the basic principles of risk.
2. Calculate the return on an investment.
3. Identify sources of risk.
4. Describe methods for measuring risk.
5. Recommend risk management actions.

Business Finance reprint_1p.indb 223 10/12/2024 15:12

Risk is the uncertainty of an event or outcome. Sometimes the word "uncertainty" is used as a substitute for "risk". When you are uncertain, you have doubt about a possible outcome. If you face a risk, there is a chance of a positive outcome and a chance of a negative result. Individuals face risks that can affect health, income, and property.

Since the future is uncertain, you will be required to take calculated risks. The reward for taking those risks is the anticipated return. While business managers and investors may make risk decisions on a qualitative basis, quantitative measures of risk are available. Even if you never compute these statistical measures, you need to know them, since you will encounter them when analyzing financial assets.

This chapter provides an elementary introduction to risk and the measurement of risk, starting with an overview of risk factors faced by businesses, followed by different uses for the word "return" and varied methods to measure risk. These include the dispersion around the return or central tendency, called a "standard deviation" and an index of the volatility of an asset's return relative to a base, such as the return on the market, referred to as a "beta" coefficient. While the chapter does illustrate how standard deviations and beta coefficients are calculated, you may never have to calculate them. (If you do, a spreadsheet program such as Excel does the mechanics virtually instantaneously.) What you need to know is how to use and interpret these measures of risk.

This chapter will also address the importance of diversifying investment portfolios, which involves investing in more than one asset or security to reduce risk. The concluding sections of the chapter discuss risk management strategies and the use of business insurance as a method of risk transfer.

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2026 - 1448

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6.1 Risk

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Key Terms

Risk	Natural risks
Economic risk	Human risks
Pure risk	Controllable risks
Speculative risk	Uncontrollable risks

Each day, everyone faces uncertainty and **risk**. Businesses face risks that can have a significant economic effect. Property and inventory can be damaged, lost, or stolen; personnel can become ill, injured, or even die; and the company's products or employees can cause damage to property or harm to others for which the business is liable. Risk carries with it the possibility of financial loss.

Risk
The degree of uncertainty about whether an anticipated return will be achieved

6.1a Types of Risk

An **economic risk** has a potential financial impact. Some risks are not economic in that they have no direct or immediate financial impact. When you attend a social activity with friends you risk not enjoying yourself. If you do not study for an exam, you risk earning a poor grade. But if an employee becomes ill and cannot work for several weeks, the person faces a financial loss of wages. If a business warehouse is destroyed by fire, the money invested in the building, equipment, and inventory is lost.

Economic risk
Uncertainty with a potential financial impact

Economic risks are either pure or speculative.

1. With a **pure risk** there is no opportunity for financial gain but only loss. For example, businesses that face the risk of fire earn no more money if the fire does not occur but suffer financially if property is damaged by fire. Severe weather is another example of a pure risk.
2. A **speculative risk** has the possibility of either financial loss or gain. Investments have speculative risk. By investing money where the value of the investment may rise or fall, the investor can make money or lose money.

Pure risk
Uncertainty with no opportunity for financial gain, only a potential loss

Speculative risk
A situation with the possibility of either financial loss or gain

Why Do Individuals and Businesses Take Risks?

Individuals and businesses take risks because of opportunities, or the possibility for success. Financial success is one of the possible outcomes of a speculative risk. In addition to financial gain, success can be measured in non-financial ways. Recognition and personal satisfaction are viewed by some as successful outcomes that do not carry a financial reward.



What risks might a business encounter?

Ministry of Education
2024 - 1446

Business Finance reprint_1p.indb 226 10/12/2024 15:12

Risks Sources or Causes

Risks have many sources or causes.

1. **Natural risks** arise from natural events or phenomena. Hurricanes, floods, earthquakes, droughts, and sand storms are all natural risks that can result in damage and loss.
2. **Human risks** result from the actions of individuals, groups, or organizations. Injuries suffered by negligent driving, losses from customer or employee theft, or fires that start from unsafe storage of products are results of human risks.

Natural risks
Uncertainty resulting from of natural events or phenomena

Human risks
Uncertainty resulting from the actions of individuals, groups, or organizations

Controllable and Uncontrollable Risk

Some risks can be controlled while others cannot:

1. **Controllable risks** can be reduced or avoided by careful actions. Most human risks are controllable, for example, safe driving, employee safety programs, and proper maintenance of buildings can reduce accidents and injuries.
2. **Uncontrollable risks** cannot be influenced by human action. Natural events such as floods and hurricanes cannot be stopped, although careful planning and preparation can reduce the losses that result from many natural risks.

Controllable risks
Unexpected possibilities that can be avoided or whose negative effects can be reduced by careful actions

Uncontrollable risks
Uncertainties that cannot be influenced by human action

6.1b Uncontrollable Business Risks

Whenever a company implements a business decision, risk is involved. An accidental fire may destroy a factory in another country, or a company may go bankrupt and not be able to repay its debts.

The four common uncontrollable risks faced by companies are geographic risk, economic risk, cultural risk, and political risk, (see Figure 6.1).

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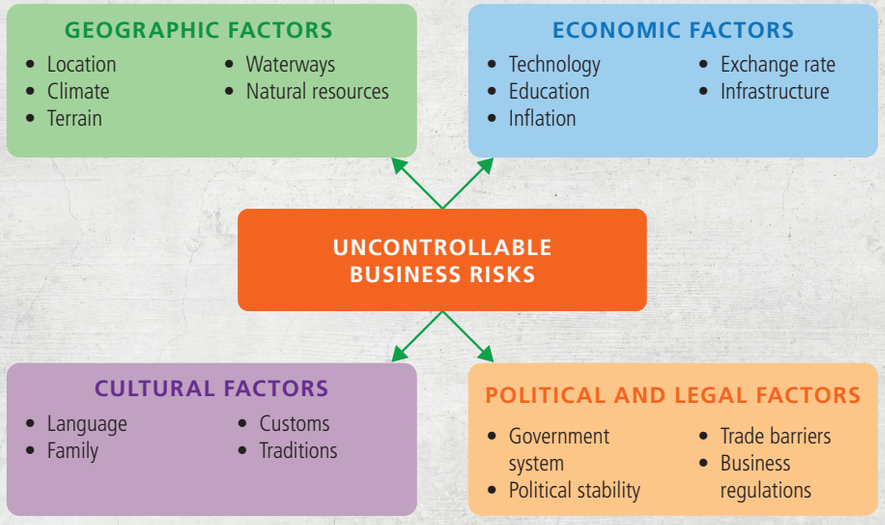
FIGURE 6.1

Uncontrollable Business Risks



Geographic Risks

A geographic risk is the risk which is incurred in certain geographic regions worldwide. Examples include extreme weather conditions such as hurricanes, typhoons, and flooding, as well as sand storm and earthquakes. As a result, poor weather conditions can destroy agricultural crops, or a rough terrain in a country can result in transportation difficulties, resulting in widespread economic and infrastructural problems. These and other geographical factors create risks for businesses.

Economic Risk

Changing prices, currency values, and consumer spending create economic uncertainty. Economic conditions have ups and downs affecting the demand for a company's goods and services.

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2026 - 1448

Business Finance reprint_1p.indb 228 10/12/2024 15:12



What type of geographic risk might a business be subject to?

Cultural Risk

Cultural differences such as traditions, social values, and family relationships can create uncertainty when doing business in different settings. Business activities are conducted differently in different parts of the world. Companies doing business in other countries must respect and be sensitive to cultural variations and beliefs of people in those nations. Failure to do so is likely to result in an unsuccessful endeavor even if all other business actions are appropriate.

In a similar manner, companies that stress individualism would face greater risk when doing business in nations that emphasize collectivism. Also, the connection between family and business is very important in some cultures and less important in others. Companies must work within this cultural environment to minimize business risk.

Political-Legal Risk

Political risk is difficult to evaluate. Government instability and political uncertainty are risks global companies must monitor constantly.

Business regulations vary from country to country. Regulations on business might be very tight in one nation, while great freedom is allowed elsewhere. Food packages in one country may require extensive nutritional information. However, another market may have different laws regulating food labeling. Trade barriers also pose a potential political risk. Tariffs, anti-dumping laws, import quotas, and currency exchange controls are examples of political actions taken to limit imported goods.

Awareness of these international business risks is especially important for Saudi Vision 2030 with diversified economic activities expanding in various global markets. In contrast to uncontrollable uncertainty, controllable risks are often related to internal business situations.

6.1c Controllable Business Risks

Operational Risks

The day-to-day activities of a company also create risks. Failure to innovate or to meet the needs of customers can cause lost profits. A disruption in the supply chain or distribution process also means a disruption in business. Higher prices of production inputs or a shortage of raw materials are other possible risks.

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2026 - 1448

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Exercises

Choose the correct answer.

1. A pure risk is a situation with an opportunity for a future financial gain.

True / False

2. A _____ risk is a situation with the possibility of either financial loss or gain.

a. pure

b. speculative

c. natural

d. controllable

3. Government regulations of business can create a _____ risk.

a. political-legal

b. geographic

c. cultural

d. controllable

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2026 - 1448

Business Finance reprint_1p.indb 231 10/12/2024 15:12

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6.2 The Return on an Investment

Key Terms

Return
Dividends
Capital gain
Expected return
Required return

Return
What is earned on an investment: the sum of income and capital gains generated by an investment

All investments are made in anticipation of a **return**. This applies to individuals and to financial managers of firms.

The Sources of Return

An investment may offer a return from two sources:

Dividends
A period payment to a stock shareholder in cash or other shares of stock

- The first source of return is the flow of income. In many countries, an investment yields a flow of interest income. This could be from an investing account, a bond, or some other type of debt obligation, such as a loan. Interest is typically specified contractually for these investments. Income from stocks will come in the form of **dividends**. A dividend is a periodic payment to a stock shareholder in cash or other shares of stock. Businesses are not required to pay dividends, but many investors consider dividends as part of the expected return from owning a stock.
- The second source of return is capital appreciation.
  - If an investor buys stock and their price increases, the investor earns a **capital gain**. A capital gain is the increase in the value of an asset based on the original price of the asset.
  - A discounted bond, where the maturity price is SAR 10,000, may be purchased for a discounted rate. The difference between the discounted rate and the maturity rate is the capital gain.
  - All investments offer potential income and/or capital appreciation. Investments, such as an investment in land, may offer only capital appreciation. Some investments may require

Capital gain
The increase in the value of the asset, based on the asset's original price

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 232 10/12/2024 15:12

expenditures, such as taxes, on the part of the investor.

The Expected Return and The Required Return

Investors and financial managers make investments because they anticipate a return. It is important to differentiate between the **expected return** and the realized return. The expected return is the financial or other incentive for accepting risk by investing. This must be compared with the **required return**, which is the amount that investors need to get back in order for them to be induced to make an investment. Typically, the higher the risk involved in an investment, the higher the expected return. The expected return depends on individual expected outcomes and the probability of their occurrence.

Expected return
The financial or other incentive for accepting risk by investing

Required return
The amount that investors need to get back in order for them to be induced to make an investment

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 233 10/12/2024 15:12

EXAMPLE

Assume Abdullah works for a mutual fund company. He is a professional investor who must consider all of the factors that can influence the return on an investment given possible risks. The company Abdullah works for has multiple mutual funds with different goals. These funds could be to have low, moderate, or higher risk growth opportunities. Abdullah's mutual fund company can't promise expected returns for investors, but he must structure the mutual funds to allow investors to reach their investment goals.

- Abdullah will evaluate potential company stocks to include in the mutual funds and may determine that under normal economic conditions, which occur 60% of the time, the expected return on this stock is 10% through capital gains and dividends.
- After reviewing the potential company's management, competition, and market conditions, Abdullah determines there is a 20% chance the economy will grow more rapidly, in which case the investment will return 15%.
- Abdullah also determines there is a 20% chance the economy will enter a recession and the company will do poorly, in which case it will earn only a 5% return.

Given the possible outcomes and their probabilities, Abdullah needs to determine the expected return on this investment.

Abdullah answers this question by looking at the outcomes and the probability of their occurring (in other words, the probability of the economy growing more rapidly, growing at a normal rate, or entering into a recession). Since Abdullah believes these probabilities are 20%, 60%, and 20%, respectively, the expected return on the investment is determined by a weighted average, see Equation 6.1:

Expected Return = Weighted Average

Weighted Average = (probability of event 1 x return on event 1) + (probability of event 2 x return on event 2) + ...

In this case, the weighted average would be calculated as:

Weighted Average = (0.2 x 15%) + (0.6 x 10%) + (0.2 x 5%)

Weighted Average = 10%.

Note: The sum of the probabilities should be 100%.

Notice that the expected return is a weighted average of the individual expected outcomes and the probability of occurrence. If the individual expected outcomes had been different, the expected return would differ.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 234 10/12/2024 15:12

You Try It

Assume you are analyzing an expected return on stocks. The expected returns of these stocks under different economic conditions are shown in the table below:

	Normal outlook	Positive outlook	Negative outlook
Probability	60%	15%	25%
Returns	9%	12%	3%

Determine the weighted average return on the investment. Will you buy this stock? Why or why not?

_____

_____

_____

_____

Now analyze an expected return on a second stock:

	Normal outlook	Positive outlook	Negative outlook
Probability	50%	20%	30%
Returns	8%	15%	1%

What is the weighted average of the second investment? Which stock would you prefer to invest in?

_____

_____

_____

_____

Exercises

Choose the correct answer.

1. The expected return on an investment includes both the expected income plus expected price appreciation.

   True / False

2. The difference between the discounted rate and the maturity rate is the capital gain.

   True / False

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6.3 The Sources of Risk

Key Terms

Diversifiable risk (Unsystematic risk)

Undiversifiable risk (Systematic risk)

If there were certainty, there would be no risk. In the real world, there is uncertainty, which requires the financial manager or investor to analyze possible outcomes and assess the investment's risk. Of course, the realized outcome may be better than expected, but the emphasis in the analysis of risk is on the negative: the outcome will be worse than expected. Since financial decisions are made in the present but the results occur in the future, risk permeates all financial decision making. The future is not certain; it is only expected.

However, sources of risk can be identified. These are frequently classified into "diversifiable" risk and "undiversifiable" risk or "unsystematic risk" and "systematic risk". (Both sets of terms are used to differentiate the sources of risk.)

Diversifiable risk

Diversifiable risk (Unsystematic risk)
Uncertainties associated with individual events that affect a particular asset; firm-specific uncertainty that is reduced by diversifying investment portfolios

A **diversifiable risk** (or **unsystematic risk**) refers to the risk associated with the individual asset. Since the investor buys specific assets, such as the stock of or the bonds of a company, that individual must bear the risk associated with each specific investment.

Sources of diversifiable risk:

1. **Business risk**: refers to the nature of the firm's operations.
2. **Financial risk**: refers to how the firm finances its assets.

Undiversifiable risk (Systematic risk)
Uncertainties associated with fluctuations in securities prices and other non firm-specific factors: market uncertainty that is not reduced through the construction of diversified

Undiversifiable risk

Undiversifiable risk (**or systematic risk**, sometimes called non-diversifiable risk) refers to those sources that are not reduced by diversifying investment portfolios.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 236 10/12/2024 15:12

Sources of undiversifiable risk:

1. **Market risk**: the risk associated with movements in securities prices.
2. **Interest rate risk**: the risk associated with fluctuations in interest rates.
3. **Reinvestment rate risk**: refers to the risk associated with reinvesting funds generated by an investment.
4. **Purchasing power risk**: is the risk associated with inflation.
5. **Exchange rate risk**: is the risk associated with fluctuations in the prices of foreign monies.
6. **Sovereign risk**: applies to investing in the debt obligations of a specific country and the possibility that the government will default.

Why might diversification be important for investors?



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 237 10/12/2024 15:12

Exercises

Choose the correct answer.

1. A diversified portfolio:
   - **a.** increases systematic risk.
   - **b.** reduces systematic risk.
   - **c.** increases unsystematic risk.
   - **d.** reduces unsystematic risk.
2. Systematic risk is reduced through portfolio diversification.
   True / False

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 238 10/12/2024 15:12

6.4 Risk Measurements

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Key Terms

Standard deviation
Beta coefficient
Capital asset pricing model (CAPM)

As stated earlier, there are a number of factors that can impact the risks faced by firms and by extension, their management and investors. In Chapter 4, there was also a discussion of the Efficient Market Hypothesis (EMH). Under this hypothesis, the value of a firm reflects all the information, including risk information, that exists in the marketplace.

For an investor, there are several indicators to assess risk developed in the finance field. This includes standard deviations of asset prices and beta coefficients.

6.4a The Standard Deviation as a Measure of Risk

As stated earlier, risk is concerned with the uncertainty that the realized return will not equal the expected return. One measure of risk, the standard deviation, emphasizes the extent to which the return differs from the average or expected return. An alternative measure of risk, a beta coefficient, is an index of the return on an asset relative to the return on a portfolio of assets (for example, the return on a stock relative to the return on a stock index).

The **standard deviation** measures the dispersion around an average value. As applied to investments, it considers an average return and the extent to which individual returns deviate from the average. If there is very little difference between the average return and the individual returns, the dispersion will be small. If there is a large difference between the average return and the individual returns, the dispersion will be large. Typically, the larger this dispersion, the greater the risk associated with the investment.

Standard deviation
A measure of dispersion around an average value; a measure of risk

This measurement is perhaps best illustrated by a simple example. Consider the returns on two stocks over a period of five years:

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Ministry of Education
2026 - 1448

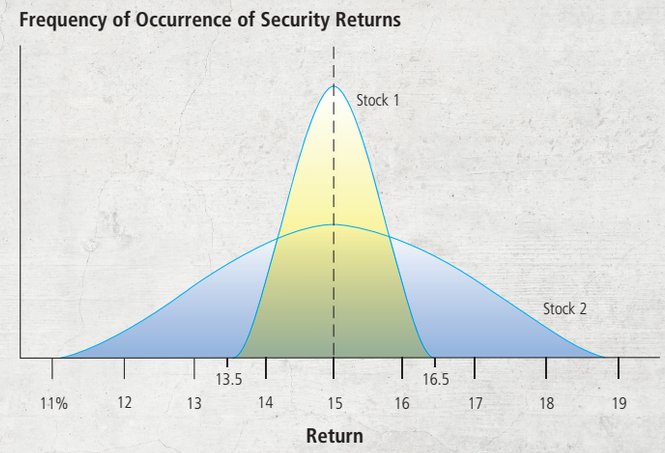
Business Finance reprint_1p.indb 239 10/12/2024 15:12

Return Year	Return Stock 1	Return Stock 2
1	13.5%	11%
2	14.5%	13%
3	15%	15%
4	15.5%	17%
5	16.5%	19%
Average return	**15%**	**15%**

The average return over the five years is the same for both stocks, 15%, but annual returns differ. Stock 1's individual returns were close to the average return. The worst year generated a 13.5% return while the best year generated a 16.5% return. None of the individual returns deviated from the average by more than 1.5%. Stock 2's individual returns differ from the average return, ranging from a low of 11% to a high of 19%. With the exception of year 3, all the returns deviate from the average by 2%.

Dispersion can be measured by the standard deviation. The standard deviation measures the tendency of the individual returns to cluster around the average return, it may be used as a measure of risk. The larger the dispersion, the greater the standard deviation and the larger the risk associated with the particular investment. The standard deviation is easily calculated using a computer program.

FIGURE 6.2
Distribution of Two Stocks



Even though both stocks achieved the same average return, an investor needs to evaluate these changes in determining the risk of investing in specific stocks. Figure 6.2 above shows that Stock 1 has not varied greatly over five years while Stock 2 shows a larger standard deviation.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 240 10/12/2024 15:12

6.4b Beta Coefficients

A **beta coefficient** is a measure of the systematic risk associated with a particular asset. While the concept may be applied to any asset, the usual explanation employs common stock. A beta coefficient is an index of risk that quantifies the responsiveness of a stock's return to changes in the return on the market. Since a beta coefficient measures a stock's return relative to the return on the market, it measures the systematic risk associated with investing in these stocks.

Beta coefficient
A measure of systemic risk; an index of the risk of a stock's return relative to changes in the return on the market

EXAMPLE

1. A beta coefficient of 1 means that the stock's return moves exactly with an index of the market as a whole. A 10% increase in the market produces a 10% increase in the return on the specific stock. Correspondingly, a 10% decline in the market results in a 10% decline in the return on the stock.
2. A beta coefficient of less than 1 implies that the return on the stock tends to fluctuate less than the market as a whole. A coefficient of 0.7 indicates that the stock's return will rise only 7% as a result of a 10% increase in the market, but will fall by only 7% when the market declines by 10%.
3. A beta coefficient of more than 1 implies that the return on the stock tends to fluctuate more than the market as a whole. A coefficient of 1.2 means that the return on the stock will rise by 12% if the market increases by 10%, but the return on the stock will decline by 12% when the market declines by 10%.

The greater the beta coefficient, the more market (systematic) risk is associated with the individual stock. High beta coefficients may indicate higher returns during rising markets, but they also indicate greater losses during declining markets. The converse is true for stocks with low beta coefficients, which should underperform the market during periods of rising stock prices but outperform the market as a whole during periods of declining prices. Such stocks are referred to as "defensive stocks."

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 241 10/12/2024 15:12

6.4c The Capital Asset Pricing Model and an Investment's Required Return

Capital asset pricing model (CAPM)
A method of calculating the relationship between systematic risk and the expected return on assets, particularly stock

The development of beta coefficients and a theory of risk reduction through diversification are exceedingly important to the process of asset valuation. The **capital asset pricing model** or **CAPM** is one method used to determine that required return. The CAPM specifies the relationship between risk and return that is used either to value or to judge an asset's expected return (valuation expresses an asset's present worth in monetary units such as SAR, an asset's return is expressed in percentages). If an asset's value exceeds its cost, or if an asset's expected return exceeds the required return, the asset is purchased by the investors. Either method produces the same decision, since the only difference is the units of measure.

The CAPM builds on the proposition that additional risk requires a higher return. This return has two components: (1) what may be earned on a risk-free asset, such as a high-quality government bond, and (2) a premium for bearing risk. For an investor, why should they purchase a risky security when they can purchase a risk-free security unless the risky security pays a higher rate of return? Since unsystematic risk is reduced through diversification, a stock's risk premium is the additional return required to bear the undiversifiable, systematic risk associated with the stock.

This risk-adjusted required return (k) is expressed in Equation 6.2 below:

$$k = \text{risk-free rate} + \text{risk premium}$$

The risk premium is composed of two components: (1) the additional return that investing in securities in general offers above the risk-free rate and (2) the volatility of the particular security relative to the market as a whole, as measured by the security's beta coefficient. The additional return is measured by the difference between the expected return on the market (r_m) and the risk-free rate (r_f). This differential ($r_m - r_f$) is the risk premium that is required to induce the individual to purchase risky assets.

To induce the investor to purchase a particular stock, the risk premium associated with the market must be adjusted by the market risk associated with the individual security. This risk adjustment uses the stock's beta coefficient, which indicates the stock's volatility relative to the market. The risk adjustment is achieved by multiplying the security's beta coefficient by the difference

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 242 10/12/2024 15:12

between the expected return on the market and the risk-free rate. Thus, the risk premium for the individual stock is expressed in Equation 6.3 below:

$$\text{Risk premium} = (r_m - r_f) \times \text{beta}$$

EXAMPLE

The calculation steps of the risk-adjusted return of two stocks, Stock A and Stock B is shown below.

Risk-free rate (r_f)	4.303%
Market return (r_m)	9%
Stock A beta	1
Stock B beta	1.31

Risk-adjusted required return k= (r_f) + beta (r_m-r_f)	
Stock A	**Stock B**
$k = 0.04303 + (r_m - 0.04303) \times 1$	$k = 0.04303 + (r_m - 0.04303) \times 1.31$
$k = 0.04303 + (0.09 - 0.04303) \times 1$	$k = 0.04303 + (0.09 - 0.04303) \times 1.31$
$k = 0.04303 + (0.04697) \times 1$	$k = 0.04303 + (0.04697) \times 1.31$
$k = 0.04303 + 0.04697$	$k = 0.04303 + 0.0615307$
k = 0.09 or 9%	k = 0.1045607 or 10.46%

As a result, the risk-adjusted required return for Stock A is 9% which is the same as the expected market return. This makes sense since the beta for Stock A is 1, or the risk is the same as the market return. Stock B has a higher beta indicating a more volatile stock, so the risk-adjusted required return is higher at 10.46%. As a result, a stock with the higher beta coefficient has the higher required return because it is riskier.

You Try It



Assume you are analyzing a risk-adjusted required return for a stock. You have determined the risk-free rate is 4.55%. The expected market return is 12%.

Determine the expected risk-adjusted required return for this stock if:

a. *Company A beta coefficient is 0.87.*

b. *Company B beta coefficient is 1.21.*

What does this tell you about the stock?

Exercises

Choose the correct answer.

1. The standard deviation measures an asset's expected return.
   True / False
2. To measure risk, the capital asset pricing model uses:
   - **a.** beta coefficient.
   - **b.** an asset's standard deviation.
   - **c.** the volatility of an asset's cash flows.
   - **d.** the term during which the asset is held.

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2026 - 1448

Business Finance reprint_1p.indb 244 10/12/2024 15:12

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6.5 Risk Management Strategies

Key Terms

Risk management	Portfolio risk
Self-insurance	Correlation

Since risk can be expected in almost all activities, efforts should be made to anticipate which risks are most likely, and then attempt to reduce the risk and minimize the possible loss. The process of systematically identifying potential uncertainties and making plans to reduce the impact of those uncertainties is known as **risk management**. Because most businesses face many risks that can cause significant financial harm or even result in business failure, risk specialists have the responsibility of planning and coordinating risk management programs. Risk management most often involves *pure* rather than *speculative* risk. Financial managers are responsible for decision-making about speculative risks or the investment decisions of a business.

Risk management
The process of systematically identifying potential uncertainties and making plans to reduce the impact of those uncertainties

6.5a Planning a Risk Management Program

Risk management specialists work at all levels of a business to identify potential risks, determine the financial impact each risk may have, develop plans and programs to prevent controllable risks and reduce the financial impact of uncontrollable risks, and provide the necessary resources and training needed to manage the risks. Risk management programs are concerned with the security of computer systems, property protection, employee health, and plans to respond to the negative effects of natural and man-made disasters.

The primary sources of risk faced by companies involve three categories: property risks, personnel risks, and liability risks.

1. Property risks are potential damage or loss to property owned, leased, and used by a business. If a business is responsible for the property of other businesses, that also is a source of property risk. For example, if a company supplies raw materials to a manufacturer, disruption of the supply or quality problems with the raw materials can result in financial loss for the manufacturer as well as the supplier.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 245 10/12/2024 15:12

2. Personnel risks include factors that affect the health, life, or earnings of employees. Businesses are responsible for controlling risk by providing safe equipment and working conditions. Employee illness, injury, or death can result from poorly maintained equipment, unsafe working conditions, or lack of safety procedures.
3. Liability means an individual or business is responsible to others for negligence. Negligence can result from an action taken or from a failure to act. If people are injured or their property damaged due to the negligence of a business, the injured party can make a financial claim against the business. The injury or damage can result from the use of property or products or the actions of company personnel.

6.5b The Risk Management Process

Companies face many risks. To address this uncertainty, Figure 6.3 shows four steps commonly taken to manage business risks.

FIGURE 6.3
The Risk Management Process



Step 1: Identify Potential Risks

In the first step of the risk management process, managers list the factors that might affect a company's operations. Currency values local customs are some examples of risk-causing factors. Managers can use current reports, field interviews, and other data sources to discover situations that increase uncertainty.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 246 10/12/2024 15:12

Step 2: Evaluate Risks

In this step, managers analyze possible effects of risks on the company. Will a change in environmental regulations create higher costs? Or could the company face new trade barriers when doing business in a certain country? At this stage, a manager must decide how and to what extent the risks will influence sales and profits.

Step 3: Select a Risk Management Method

Next, managers must determine how to address the identified risks. The four risk management methods commonly used are risk avoidance, risk reduction, risk transfer, and risk assumption.

Step 4: Implement the Risk Management Program

Finally, managers must put the risk management plan into action. This phase involves both taking appropriate actions and measuring the success of those actions.

6.5c Risk Management Methods

When planning and implementing a risk management program, as shown in Figure 6.4, there are four possible ways to deal with risks: avoid, reduce, transfer, and assume.

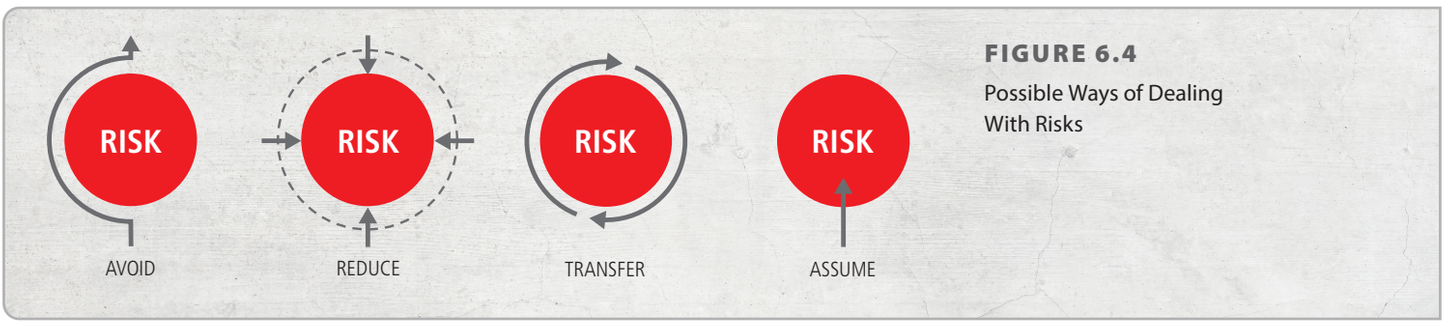

FIGURE 6.4
Possible Ways of Dealing With Risks

Risk Avoidance

With careful planning, some risks can be avoided. To avoid risks, decision-makers need to be aware of risks that can threaten a business decision. They must determine the costs and possible rewards of their decisions.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 247 10/12/2024 15:13

They must estimate the size of losses if anticipated problems occur. If the likelihood of risk or the amount of loss is too great, decision makers may prefer to avoid the action. This ensures that there will be no loss.

Examples of risk avoidance include:

- If a country has an unstable economic environment, a business can choose to avoid operations in that country.
- If a certain manufacturer of production equipment has a poor safety record, equipment can be purchased from another supplier.
- A company avoids the risks related to international business by only selling products in its home country.
- If market research suggests there may not be enough demand for a new product to cover the costs, a business can choose not to make that product.

From a personal perspective, if you don't believe you have enough experience or skill to start your own business, you can decide not to become an entrepreneur. If severe weather is forecast, you can choose not to drive your car to avoid a possible accident.

Risk Reduction

When a company is unable or unwilling to avoid a risk, uncertainty may be reduced by taking preventive actions. For example:

- Businesses use security systems and sprinklers to reduce the risk of theft and fire.
- Enhanced online protection can reduce data breaches and cybercrime.
- Multinational companies can reduce business risks by only selling products that have been successful in other countries.

Personal risk reduction can be the result of obeying traffic laws and wearing seatbelts when driving.

Risk Transfer

Often a business activity must occur even though there is a risk with significant financial consequences. If a business is not able to assume the risk, it may choose to transfer it. When a business transfers a risk, someone else assumes the risk. Examples of transferring risk include:

- Hiring a company to handle sales and collections. The bank or financial service company accepts the risk of unpaid accounts in exchange for fees earned on each sale.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 248 10/12/2024 15:13

- Using the services of a transportation and storage company to transfer the risk of product damage for items in transit.
- Creating a joint venture with an experienced research company to transfer the risk of a costly or unsuccessful research process to plan a new product.

Also called "*risk sharing*", a risk transfer strategy may involve insurance. Sharing risks among many companies that face similar risks is a common practice. Insurance is often purchased for financial protection from property losses, motor vehicle accidents, and other business activities.

For risks that can be reasonably predicted, it is possible to purchase insurance. Businesses that face the risk of fire damage to their buildings, equipment, and inventories can pool those risks with other businesses by purchasing fire insurance.

A few businesses may have losses from fires during a specific period. Based on the history of fires in businesses, experts can reasonably estimate the total amount of fire damage among several businesses for that amount of time. Each business will pay a small amount for insurance that will cover the losses of the businesses that may suffer a loss from fire.

By purchasing insurance, the company pays a small percentage of the possible loss to an insurer for protection against the larger loss if the risk occurs. The greater the likelihood of the risk or the larger the possible loss, the more expensive the insurance will be. Taking steps to reduce the possibility or cost of the loss can reduce the insurance costs.

How can businesses manage risks?



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 249 10/12/2024 15:13

Risk Assumption

In some situations, avoiding, reducing, or transferring risk may not be possible. Or a company may decide to take responsibility for losses from certain risks. For example, a business may set aside funds for fire damage that may occur to its factories. This action, called **self-insurance**, involves setting aside money to cover a potential financial loss. A company with many stores or factories in different locations may save money by using self-insurance.

Self-insurance
Setting aside money to cover a potential financial loss

If a business decides to assume a risk, the business will bear the consequences of the damage a risk may cause if it occurs. The company believes funds will be available to cover the financial loss. Large companies may choose to set aside a small amount of money each month for unexpected expenses or unforeseen risks.

Risk assumption may be used if a risk is unlikely to occur or if the possible financial loss is relatively small. If the cost to the business to insure or transfer the risk is high, it may be more reasonable for the company to assume the risk.

Business operations of a company also involve risk assumption. Once a business offers an item for sale, it must be able to sell the product at a price to cover the costs. If the sales goal is not achieved, the business suffers a loss. Companies assume the risk of being able to make a profit.

6.5d Diversification of Risk

Another strategy used for reducing business and investment risk is "diversification", which involves obtaining a variety of assets and securities. Instead of investing in a single stock, the selection of two or more companies can reduce your **portfolio risk**, the total risk of combined investments.

Portfolio risk
Uncertainty associated with making a range of investments which involve both systematic and unsystematic risk

For example, portfolio risk can be reduced when investing in a utility company and an oil company instead of just one of those industries. In times of higher interest rates and inflation, the earnings of the utility company may decline as costs rise and regulations limit the amount of price increases. In contrast, the oil company may benefit from higher prices resulting in higher earnings. The price of the utility company's stock may decline, producing negative returns, while the price of the oil company's stock may rise producing positive returns.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 250 10/12/2024 15:13

This inverse relationship between the two stocks, measured with **correlation**, results in a lower portfolio risk:

Correlation
The relationship between two or more financial variables over time

1. **Positive correlation:** If there is a positive correlation between two stocks, combining them in an investment portfolio would not reduce risk as the stocks would tend to move in the same direction at the same time.
2. **Negative correlation:** If there is a negative correlation between two stocks, combining them in an investment portfolio would reduce risk as the stocks would not tend to move in the same direction at the same time.

Characteristics of a diversified investment portfolio include:

- Stocks should have returns that move in opposite directions; if the returns become positively correlated, combining the two stocks will not achieve a reduced investment portfolio risk.
- Effective diversification results in reduced unsystematic risk, which is associated with individual events affecting a particular asset or company; firm-specific risk is reduced with the creation of a diversified investment portfolio.
- Creating an investment portfolio with different industries does not eliminate the other sources of risk, such as changes in stock prices, inflation, changes in interest rates, or variations in exchange rates.
- Reduction in risk, not the returns, is the goal of diversification. This risk reduction can be viewed by comparing the standard deviations of the individual stock returns and combined investment portfolio return. With an appropriate portfolio diversification, the total standard deviation for the portfolio would be lower than the standard deviations of the returns for any of the individual stock investments.

Diversifying investments reduces the impact a risk may have on the total investment portfolio, even if one asset performs poorly. The strategy of diversification is also used by companies when offering an array of products and services. For example, an industrial manufacturing company may also be involved in selling consumer goods to diversify its revenue sources.

Exercises

Choose the correct answer.

1. The first step of the risk management process is to:
   - **a.** evaluate risks.
   - **b.** implement the risk management program.
   - **c.** select a risk management method.
   - **d.** identify potential risks.
2. Self-insurance is considered to be an example of risk:
   - **a.** avoidance.
   - **b.** reduction.
   - **c.** transfer.
   - **d.** assumption.
3. Diversification is achieved by:
   - **a.** buying insurance.
   - **b.** obtaining a variety of assets.
   - **c.** creating a self-insurance program.
   - **d.** risk avoidance.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 252 10/12/2024 15:13

Chapter 6 Assessment

SUMMARY

Risk is the uncertainty of an event or outcome and every business faces potential risks. With a pure risk there is no opportunity for financial gain but only loss. A speculative risk has the possibility of either financial loss or gain. Investments have speculative risk. Uncontrollable business risks can be the result of geographic, economic, cultural, and political factors, while controllable risks relate to the business operations of an enterprise.

Investments are made in anticipation of a return, which is a flow of income and/or price appreciation. Individuals and financial managers make investments in anticipation of a return, but the realized return may differ from the expected return. That is the element of risk; the future is uncertain.

Several sources of risk exist. These include the risk associated with the specific asset (diversifiable, unsystematic risk) and the undiversifiable, systematic risk from fluctuations in securities prices, changes in interest rates, reinvestment rates, inflation, and fluctuations in exchange rates.

Risk may be measured by an asset's (or portfolio's) standard deviation, which measures the dispersion around the realized return (in the case of historical returns) or the expected return (in the case of anticipated returns). The larger the dispersion of the returns, the greater the risk.

An alternative measure of risk determines the responsiveness of an asset's return relative to the market performance as a whole. This measure, called a beta coefficient, is an index of the systematic risk associated with the asset. The larger the beta coefficient, the greater the systematic risk associated with the security, since its return has risen or fallen more rapidly than the return on the market as a whole.

Beta coefficients are used to determine an investor's required rate of return. This capital asset pricing model specifies the required return and includes: (1) the risk-free rate that may be earned on very safe investments plus (2) a risk premium. The risk premium includes a premium for purchasing risky assets instead of the risk-free asset, plus an adjustment for the systematic risk associated with the particular investment.

The process of systematically identifying potential risks and making plans to reduce the impact of risk is known as "risk management". Risk specialists have the responsibility of planning and coordinating risk management programs. Risk management most often involves *pure* rather than *speculative* risk and the four risk management methods commonly used are risk avoidance, risk reduction, risk transfer, and risk assumption.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 253 10/12/2024 15:13

The construction of a diversified portfolio reduces the risk associated with the particular asset. By owning a variety of assets whose returns are not highly positively correlated, the investor reduces unsystematic risk without necessarily reducing the potential return on the portfolio as a whole. Unfortunately, the construction of a diversified portfolio does not reduce the other sources of risk.

QUESTIONS

1. List four different types of risk.

2. Describe the expected, and required returns.

3. Explain the difference between the following risks: geographic risk, economic risk, cultural risk, and political risk.

4. Briefly describe risks you have observed throughout your daily life.

5. Differentiate the standard deviation and the beta coefficient as measures of risk.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 254 10/12/2024 15:13

6. Explain why larger standard deviations indicate increased risk.

7. Explain why higher beta coefficients indicate increased risk.

8. How is the required return calculated using the capital asset pricing model (CAMP)?

9. Illustrate the relationship between beta coefficient and the required return.

10. Describe a situation in which a company might use each of the following methods:

a. risk avoidance

b. risk reduction

c. risk transfer

d. risk assumption

Business Finance reprint_1p.indb 255 10/12/2024 15:13

11. Why might an investor wish to invest in two uncorrelated industries?

12. What are the four most commonly used risk management methods?

EXERCISES

1. You are considering purchasing Stock A. What is your expected return on your investment given the range of economic outcomes and returns shown below?

	Rapid growth	Declining economy	Slow growth
Probability	15%	20%	65%
Returns	30%	–20%	6%

2. Two stocks, A and B, have beta coefficients of 0.8 and 1.4, respectively. If the expected return on the market is 10% and the risk-free rate is 5%, what is the risk premium associated with each stock?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 256 10/12/2024 15:13

3. What is the expected return of Stock A, assuming that it has a beta coefficient of 0.57, a risk free investment yields 2.3% and the expected return on the market is 8.1%?

4. What is the expected return on an investment with a beta coefficient of 1.3 if the risk-free rate is 2% and the return on the market is 8.1%? If the required return on the investment is 11.2%, what should you do?

ASSESSMENT QUESTIONS

Choose the correct answer.

1. An earthquake can create a situation with a _____ risk.
   - **a.** speculative
   - **b.** human
   - **c.** natural
   - **d.** controllable
2. The uncertainty that the realized return will not equal the expected return is called risk.

   True / False
3. Unsystematic risk is the tendency for stock prices to move together.

   True / False
4. The capital asset pricing model specifies the required return adjusted for systematic risk.

   True / False

5. The risk-adjusted required rate of return excludes:
   - **a.** the stock's standard deviation.
   - **b.** the stock's beta coefficient.
   - **c.** the risk-free rate.
   - **d.** the anticipated return on the market.
6. Buying insurance is an example of risk avoidance.
   True / False
7. The final step in the risk management program is to implement the program.
   True / False

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your choice	Definition
1. Beta coefficient		**a.** Unexpected possibilities that can be avoided or whose negative effects can be reduced by careful actions
2. Capital asset pricing model (CAPM)		**b.** A period payments to a stock shareholder in cash or other shares of stock
3. Capital gain		**c.** Uncertainty resulting from the actions of individuals, groups, or organizations
4. Controllable risks		**d.** Uncertainty with no opportunity for financial gain, only a potential loss
5. Correlation		**e.** Uncertainty with a potential financial impact
6. Diversifiable risk (Unsystematic risk)		**f.** Uncertainty resulting from natural events or phenomena
7. Dividends		**g.** A method of calculating the relationship between systematic risk and the expected return on assets, particularly stock
8. Economic risk		**h.** The amount that investors need to get back in order for them to be induced to make an investment
9. Expected return		**i.** What is earned on an investment; the sum of income and capital gains generated by an investment
10. Human risks		**j.** The process of systematically identifying potential uncertainties and making plans to reduce the impact of those uncertainties

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 258 10/12/2024 15:13

Term	Your choice	Definition
11. Natural risks		**k.** A situation with the possibility of either financial loss or gain
12. Portfolio risk		**l.** The increase in the value of the asset, based on the asset's original price
13. Pure risk		**m.** Uncertainties associated with fluctuations in securities prices and other non firm-specific factors: market uncertainty that is not reduced through the construction of diversified portfolios
14. Required return		**n.** Uncertainties that cannot be influenced by human action
15. Return		**o.** A measure of dispersion around an average value; a measure of risk
16. Risk		**p.** Uncertainties associated with individual events that affect a particular asset; firm-specific uncertainty that is reduced by diversifying investment portfolios
17. Risk management		**q.** The degree of uncertainty about whether an anticipated return will be achieved
18. Self-insurance		**r.** A measure of systemic risk; an index of the risk of a stock's return relative to changes in the return on the market
19. Speculative risk		**s.** The relationship between two or more financial variables over time
20. Standard deviation		**t.** The financial or other incentive for accepting risk by investing
21. Uncontrollable risks		**u.** Uncertainty associated with making a range of investments which involve both systematic and unsystematic risk
22. Undiversifiable risk (Systematic risk)		**v.** Setting aside money to cover a potential financial loss

KEY FORMULAS

Weighted Average Return = (probability of event 1 x return on event 1) + (probability of event 2 x return on event 2) + ...

CAPM risk-adjusted required return (k) = risk-free rate + risk premium

Risk premium = (market return (r_m) – risk free return (r_f)) x beta

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2026 - 1448

Business Finance reprint_1p.indb 259 10/12/2024 15:13

MINI CASE 6.1

Investment Decisions

Amina likes to make her own investments for her long-term retirement portfolio. She is seeing considerable systemic risk in the investment environment. Amina has decided to evaluate her investment portfolio given the risks she has identified. She doesn't want to be too conservative in her approach in case there is a sudden growth in the equities market.

Task

1. List the types of systemic risks Amina may be identifying.

2. Which methods can Amina use to evaluate and readjust her investment portfolio?

3. Use the risks you identified to recommend which financial tools Amina should be using. Justify your response.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 260 10/12/2024 15:13

MINI CASE 6.2

Risk Management and Insurance

One of the goals of Saudi Vision 2030 is to create paths for business success for small and medium enterprises and large corporations. As new enterprises develop and existing companies expand, an increased knowledge of risk management strategies will be needed. Sahar and several business partners have started a small manufacturing company to produce components for generating solar energy. The company has a production facility, warehouse and office space. Currently, 14 people are employed by the company involved in research, production, distribution, office activities, and administration. The company works with eight suppliers providing materials used in production, and has five main customers, which are companies that create solar panels and solar energy installations.

Task

1. Explain how Sahar and her business partners might use risk avoidance, risk reduction, risk transfer, and risk assumption to create a risk management plan for their company.

2. Recommend various types of insurance the company might consider to protect itself.

Business Finance reprint_1p.indb 261 10/12/2024 15:13

MINI CASE 6.3

Capital Asset Pricing Model (CAPM)

As commodity companies attempt to attract investors, managers realize that a higher rate of return may be required due to various risks associated with the investments. An investor will only buy a company's stock if rewarded for taking the risk. The expected return of an investor must exceed the required return based on a risk premium. The capital asset pricing model (CAPM) may be used to determine that risk premium. With CAPM the risk premium is based on: (1) an additional return above the risk-free rate, and (2) the unpredictability of the commodity company's stock compared to the market, measured by the beta coefficient of the stock. The risk premium using CAPM is calculated with this equation:

$$\text{Risk premium} = (r_m - r_f) \times \text{beta}$$

The components of the equation include: (1) the expected market return (r_m), (2) the risk-free rate (r_f), and (3) beta coefficient.

Task

1. Explain possible risks a commodity company might encounter to use the capital asset pricing model (CAPM) to determine the risk premium.

2. Using the CAPM formula, calculate the risk premium for the following situation:

beta: 1.2 *risk-free rate: 5%* *average market rate: 11%.*

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 262 10/12/2024 15:13

CASE STUDY: INVESTMENT CONSULTING

The supervisor of the retiree's personal finance section of a large Saudi bank has given Khalid and Fatima their project assignment. Khalid and Fatima are both recent college graduates with degrees in finance. They have been instructed to devise a plan to attract young Saudi professionals to open a retirement investment account with the bank. Their plan will need to be presented the following week to the bank executive management. The bank has primarily served older Saudis with their business and personal banking.

Khalid and Fatima start their meeting. "I think we need a two-step approach. The first thing I think we need to do is point out to the executive management that one of the goals under Saudi Vision 2030 is to promote greater financial independence for individuals and retirement options. Then we need to design an investment strategy for our Saudi young professionals," Fatima says.

"That's true," replies Khalid, "but we need to present some data to show the potential of this plan. Let's do some research and meet tomorrow." The graduates gather their research and meet the following morning. Khalid starts, "Saudi Arabia's General Organization for Social Insurance fund has been doing very well earning returns of over 14% last year." Fatima replies, "True, but how long will that fund last? The long-term population trends for Saudi Arabia suggest that by 2050, a large proportion of the population will be either in retirement or approaching retirement. Saudi life expectancies are also increasing. Individuals need to start retirement planning now so they will have retirement funds from the government, their workplace, and private savings and investments. That is where we come in."

"I think we have a strong case for starting retirement investment products for the bank, but what should we recommend for investors?" asks Khalid. "The bank's management is somewhat conservative, and they may not approve of investments for individuals who are willing to take on higher growth strategies with lower risk."

"We also have the issue of our targeted young investors. Many of them will be new to investing and their views may be based on what they hear from online sources about great investments," Fatima says. "We will most likely need to have an educational program for investors. We will also need to determine if we will use existing Saudi investment products found on the Tadawul exchange or if we should work with our international branch to offer investment opportunities outside of Saudi Arabia, "Our bank already has licensed brokers and relationships with investment banks and their market maker dealers. Younger investors may want a portfolio that expands beyond Saudi investment opportunities" Khalid points out.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 263 10/12/2024 15:13

Fatima replies, "I think we need to look at the current beta coefficient of our bank's investment products. These may be on the conservative side. Younger investors who have a long-term investment horizon and may be willing to take more risk. They may also want to use other investment strategies such as margin purchases and short selling."

Khalid replies, "We will need to devise a portfolio investment strategy for young professionals to present to executive management for their approval. We will need to convince bank management to develop the technical platform for investment. Younger investors want to use their cell phones for monitoring their portfolios."

Fatima comments, "Let's put together our initial presentation for executive management and show it to the supervisor for comments."

Study Questions

1. To help Khalid and Fatima inform young Saudi professionals about their project in an educational program, create a list of uncontrollable risks that could influence business performance.

2. Khalid and Fatima need to explain financial risk beta coefficients to young Saudi professionals. Write a short explanation of beta coefficients, how these are determined and how they should be used in making investment decisions.

3. Khalid and Fatima are concerned that young Saudi professionals may not see a reason to invest for retirement. Write an explanation of how investing for retirement should fit into a risk management strategy for young Saudi professionals.

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Ministry of Education
2026 - 1448

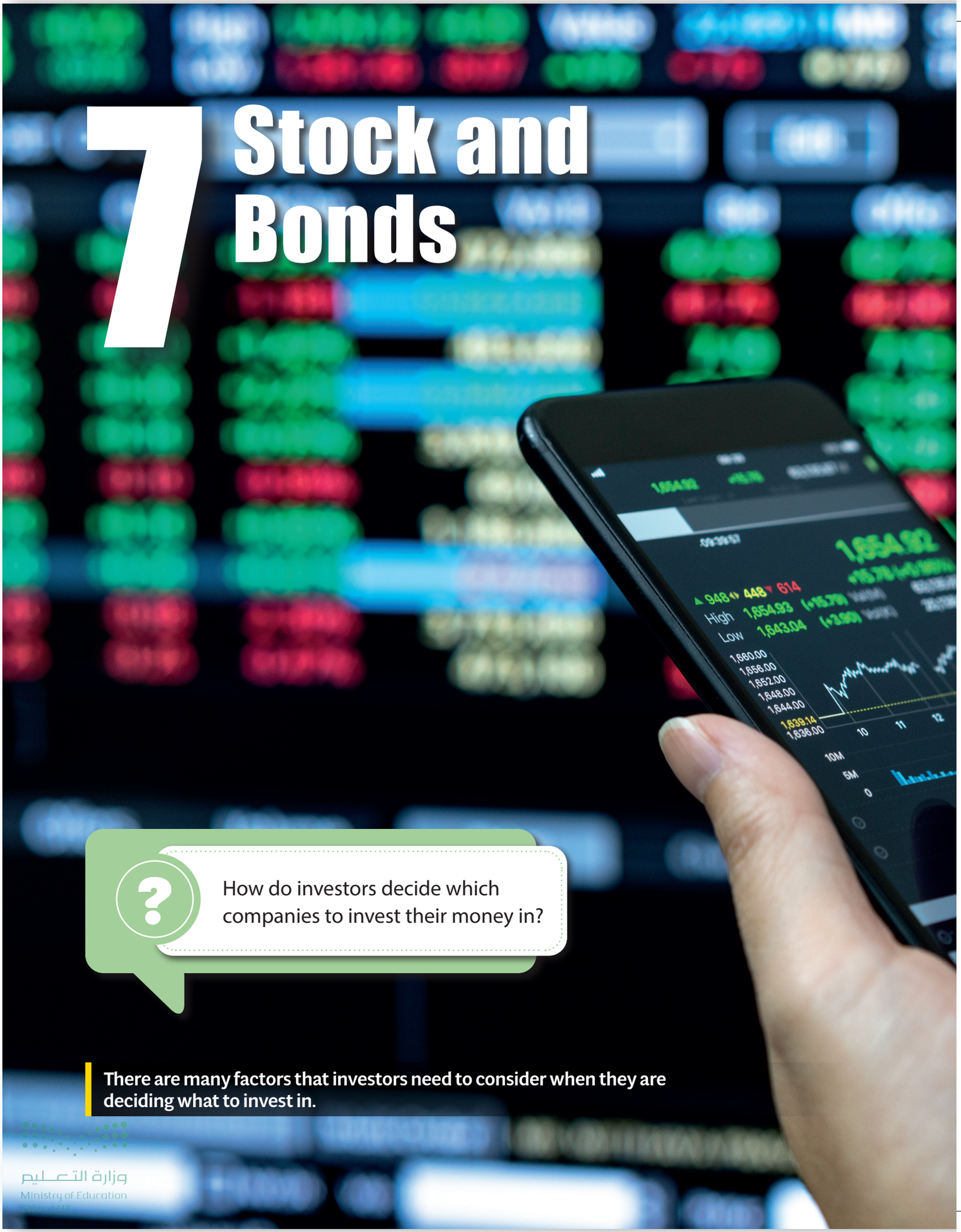
Business Finance reprint_1p.indb 264 10/12/2024 15:13

Online Activity

Research Saudi banks that are offering retiree personal finance plans. Identify the types of investment products and services they are offering. Determine how well these offerings meet the needs of young Saudi professionals and present your findings.

Business Finance reprint_1p.indb 265 10/12/2024 15:13

7 Stock and Bonds



How do investors decide which companies to invest their money in?

There are many factors that investors need to consider when they are deciding what to invest in.

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LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Understand the various sources of funding for a company.
2. Describe the advantages and disadvantages of common stock.
3. Explain the strategies influencing a company's dividend policy.
4. Explain the advantages and disadvantages of preferred stock.
5. Describe the characteristics of all debt instruments.
6. Describe the types of corporate bonds.
7. Explain how companies can retire debt.
8. Understand the role of government securities and national debt.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 267 10/12/2024 15:13

In the Kingdom of Saudi Arabia, joint stock companies are regulated by the Capital Market Authority (CMA), as discussed previously in Chapter 4. The Saudi Vision 2030 has set a goal of facilitating the flow of private investment to improve Saudi business competitiveness. In response, Saudi Arabia's Cabinet of Ministers has set regulations designed to modernize the Saudi corporate law framework and provide flexibility in operating existing businesses in Saudi Arabia. These new regulations are also designed to attract foreign investment into the Saudi Arabian market by following international practices.

This chapter covers sources of funding available in public markets including common and preferred stock, and bonds. Companies need to determine the distribution or retention of earnings, stock dividend policy, stock splits, and stock buy-backs. Companies also need to determine how they can receive funding in bond markets. There always needs to be a balance between the various sources of funding for a business to limit risks and ensure business operations.

Fahd is eager to use his considerable corporate finance management experience in his new position as a chief financial officer (CFO). Fahd reports directly to Turki, the company's new chief executive officer (CEO). Their joint stock company, or corporation, has been in business for five years and the board of directors wanted new management to help the company grow. Fahd has reviewed the company's financial statements from both the public annual and quarterly reports, and internal documents. Turki wants to raise additional capital and has asked Fahd to review selling common stock to individuals who will become part owners (shareholders) in the corporation, as well as other financing options. Fahd needs to determine if the corporation should issue preferred stock or bonds, but he is not sure of the credit rating for the company. They have a Shariah-compliant business, so they are also considering the sukuk market.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 268 10/12/2024 15:13

7.1 Sources of Funding

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Key Term

Residual claim

To obtain assets to operate, a company must find sources of funding through either equity or debt. Investors who own stock in a joint stock company have equity ownership. Joint stock companies, commonly called corporations, may also issue a variety of debt instruments, such as bonds and sukuk, to tap the funds of investors who purchase debt securities. A company's debt obligations have a prior claim to a company's earnings over equity. This means that a business must pay interest on debt before there are any earnings available to the owners. If the company is liquidated, debts must be paid first, and any remaining assets are distributed to the owners. Equity ownership, therefore, is a residual claim. As a **residual claim**, equity is riskier than debt. Common stock represents the final claim on the company's earnings and assets. While equity represents the residual claim, it is still a claim, and the managers and employees work for and are held responsible to the stockholders.

Residual claim
A claim to a share of earnings after a debt has been settled

7.1a Equity

Equity represents ownership of a company. If Fahd's company performs poorly, there may be little or no returns available to the owners. However, a profitable company can generate a large return for its owners, since after the debt obligations are met, the residual earnings accrue solely to equity owners. While there may be many different types of debt instruments, there are only two types of stock: common stock and preferred stock. As the name implies, preferred stock has a preferred or superior position.

Exercises

Choose the correct answer.

1. There are more than two types of stock.
   True / False
2. Common stock represents the initial claim on the company's earnings and assets.
   True / False

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2026 - 1448

Business Finance reprint_1p.indb 269 10/12/2024 15:13

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7.2 Common Stock

Key Terms

Common stock	Prospectus
Board of directors	Retained earnings
Articles of association/Articles of incorporation	Preemptive rights
	Tradable rights
Treasury shares	Acquisition

Common stock
Security representing ownership in a corporation; those who own these securities have a final claim on the firm's assets and earnings after the firm has met its obligations to creditors and preferred stockholders

Common stock is direct equity ownership in a corporation. Common stockholders have the right to:

- attend a company's stockholder general assembly meeting and receive dividends when distributed;
- vote for a corporation's board of directors; and
- purchase, as a priority, additional shares stock if the company issues new shares.

Shareholders have residual claims on the assets and earnings of a corporation. In case of liquidation, the holder of common stock receives whatever is left after all other claims have been satisfied. A common stockholder receives earnings that have accrued after expenses, interest, and preferred stock dividends are paid. Common stock investors bear the risk and reap the rewards associated with the ownership of a corporation.

Investors who purchase common stock receive all the rights of ownership including the right to "vote the shares" to elect the corporation's board of directors. Voting is typically based on the proportion of stock ownership. Stockholders who own 20% of the common stock of a company would have 20 times more shares of the vote than a stockholder with 1% of the common stock. The **board of directors** selects the company's management. Management is then responsible to the board of directors, which, in turn, is responsible to the company's stockholders. If the stockholders do not think that the board is doing a competent job, they may elect another board to represent them.

Board of directors
Body elected by and responsible to stockholders to set policy and hire management to run a corporation



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 270 10/12/2024 15:13

Fahd's company has a set of bylaws, or procedures, for the operation of a joint stock company called **articles of association** or **articles of incorporation**. These articles indicate the total number of shares of common stock and preferred shares authorized to be issued by the company. The board may not want to have all authorized common stock shares issued, or floated, to the public for sale as outstanding shares. Some shares remain with the company as **treasury shares**. Treasury shares are stock held by the company for use as employee stock. Turki and the board strongly believe that an employee share strategy is needed for their business to hire the best employees. Employees who stay with the business can receive shares of stock in the company. If the company meets performance goals, then management can be awarded additional shares as incentives.

Articles of association / Articles of incorporation

Bylaws, or procedures, for the operation of a joint stock company

Treasury shares

Stock held by the company for use as employee stock

Why should the board of directors and the company's management be separate?



Business Finance reprint_1p.indb 271 10/12/2024 15:13

There are multiple considerations in determining how to fund the operations of a company. Fahd's company's articles of association authorized the company to issue two million shares of common stock. One million shares were floated or issued to the public. As a publicly traded company, major financing decisions must be made public in a **prospectus**, a document that provides information about an investment such as a stock or mutual fund. The Saudi CMA requires that a company's prospectus must contain all information necessary for an investor to make an assessment of the activities, assets and liabilities, financial position, management, and prospects for the company's profits and losses so investors can monitor the business's finances. In addition, the prospectus must include information related to the number and price of the securities, and any obligations, rights, powers, and privileges related to the securities.

Prospectus

A document that provides information about an investment such as a stock or mutual fund



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 272 10/12/2024 15:13

Figure 7.1 shows a simplified balance sheet for Fahd's company at the beginning of the year. The company has SAR 100 million in assets for the business to use to generate sales. This is balanced against debt of SAR 30 million and equity consisting of outstanding stock paid in, or share capital, of SAR 40 million and retained earnings of SAR 30 million.

All Numbers in SAR (million)	
Balance Sheet	**Start of Year**
Assets	100
Liabilities and Equity	
Debt	30
Owner's Equity	
Share Capital	40
Retained Earnings	30
	100

FIGURE 7.1
Simplified Balance Sheet

Fahd's company set an initial nominal value, or actual value, per share price for common stock for accounting purposes. In the balance sheet, the share capital represents the funds produced by the sale of outstanding stock. When Fahd's company issued stock through its investment bank, the funds received for the outstanding stock represent the stock share capital invested in the company. This has no relationship to the current stock price of shares in the open market. The open market prices are determined by the supply and demand for the stock shares. **Retained earnings** represent the accumulated profit of the company that have not been distributed since the company's inception and, like the common stock, represent an investment in the company by common stockholders. Because these stockholders would receive the earnings if they were distributed, retained earnings are part of the stockholders' contribution to the company.

Retained earnings
Accumulated profit after dividends

To raise additional funds, Fahd's company could try to issue the full remaining one million authorized shares. But this would mean that the current owner's equity of SAR 70 million would now need to be distributed across two million shares instead of one million shares. In addition, a current common stockholder would see their voting rights cut in half. Current stockholders could see a considerable reduction in the value of their stock.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 273 10/12/2024 15:13

If Fahd's company is not able to provide expected returns to common stock owners, the stock owners could vote for new board members to replace management.

Fahd has seen that his company's articles of association authorize **preemptive rights**, which is the right of a current stockholder to maintain their proportionate ownership in the company if the company issues shares for sale. If the company wants to sell additional shares to the public, these new shares must be offered initially to the existing stockholders in a sale based on **tradable rights**.

Preemptive rights
The right of current stockholders to maintain their proportionate ownership in the company

Tradable rights
The entitlement to subscribe to new shares listed during a capital increase, such as the sale of new stock shares



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2026 - 1448

Business Finance reprint_1p.indb 274 10/12/2024 15:13

The board of directors of Fahd's company have set a goal of having the company's stock listed in a Saudi fund. Funds are professionally managed, and these money managers often press corporate executives to achieve higher earnings and returns for stockholders. Funds and other organizations that purchase large blocks of stock will have large numbers of voting shares. If management is unable to achieve its goals, these money managers may seek the replacement of management or the **acquisition** of the corporation by another company whose goal is higher stock returns. The threat of a change in management or a takeover often encourages a corporation's board of directors and current executives to pursue strategies that increase the value of the company's stock.

Acquisition
The purchase of a company by another company

Fahd wants to ensure that the company is working for all equity investors. This requires that the company provides the expected return on investment for shareholders. Common stockholder returns come from two sources:

1. increases in the value of the common stock; and
2. dividends paid to stockholders.

Fahd will need to recommend a dividend policy to his company's board of directors.

Exercises

Choose the correct answer.

1. To obtain assets to operate, a company must find sources of funding through either equity or debt.
   True / False
2. A business must pay earnings to the owners before interest payments on debt.
   True / False



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2026 - 1448

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7.3 Dividend Policy

Key Terms

Cash dividends	Ex dividend
Financial transaction costs	Pay date/Distribution date
Payout ratio	Share dividends
Yield	Dilution
Date of record	Stock split

Cash dividend
Distribution from earnings paid into the bank accounts of shareholders

After a corporation has earned profits, management must decide what to do with these earnings. The company can retain earnings and increase each stockholder's investment in the company, reduce debt, or distribute earnings as a **cash dividend**. If the earnings are distributed, the cash flows out of the company. If the earnings are retained, management will put the funds to work by purchasing income-earning assets or retiring outstanding debt.

Fahd needs to consider alternative strategies for the use of retained earnings to present to the board of directors. Figure 7.2 below shows simplified balance sheets outlining three options for the company, assuming there is SAR 10 million in retained earnings at the end of the year.

The options are:

- **Option 1 – increase assets**. The retained earnings increase the cash available for the company to purchase additional assets to help increase sales.
- **Option 2 – reduce debt**. The earnings created can be used to reduce debt from SAR 30 million to SAR 20 million. This could lower debt costs for the company in the following years.
- **Option 3 – pay dividends**. The company would use the full SAR 10 million to pay dividends. This would not change the balance sheet because the funds that come into the company would be used to pay dividends to shareholders.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 276 10/12/2024 15:13

	All Numbers in SAR (million)			
Balance Sheet	**Start of Year**	**Option 1 Increase Assets**	**Option 2 Reduce Debt**	**Option 3 Pay Dividends**
Assets	100	**110**	100	100
Liabilities and Equity				
Debt	30	30	**20**	30
Equity				
Share Capital	40	40	40	40
Retained Earnings	30	**40**	**40**	30
	100	**110**	100	100

FIGURE 7.2
Options for Retained Earnings

In Option 1 and Option 2, the company retains all the earnings, so retained earnings increase by SAR 10 million. If earnings are distributed as cash dividends, the company's equity is not increased. Fahd's company board wants the business to grow, so investing in additional assets is needed. However, Fahd could recommend the use of alternative sources of funds. Money may be borrowed, but this could increase the financial risk to the company. Funds may be obtained by issuing additional stock, but it may not make sense to distribute earnings and then issue new shares to raise equity. The retention of the earnings would achieve the same effect and not involve the costs associated with selling new stock.

Few companies distribute all their earnings, and many distribute no earnings. Since the stockholders are the owners of the company and are entitled to the earnings, the question becomes what do the stockholders want—additional investment in the company or cash dividends? This would seem to be an easy question for Fahd to answer but it is not. Usually, many different stockholders own shares and some may seek income through dividends while others may seek capital gains.

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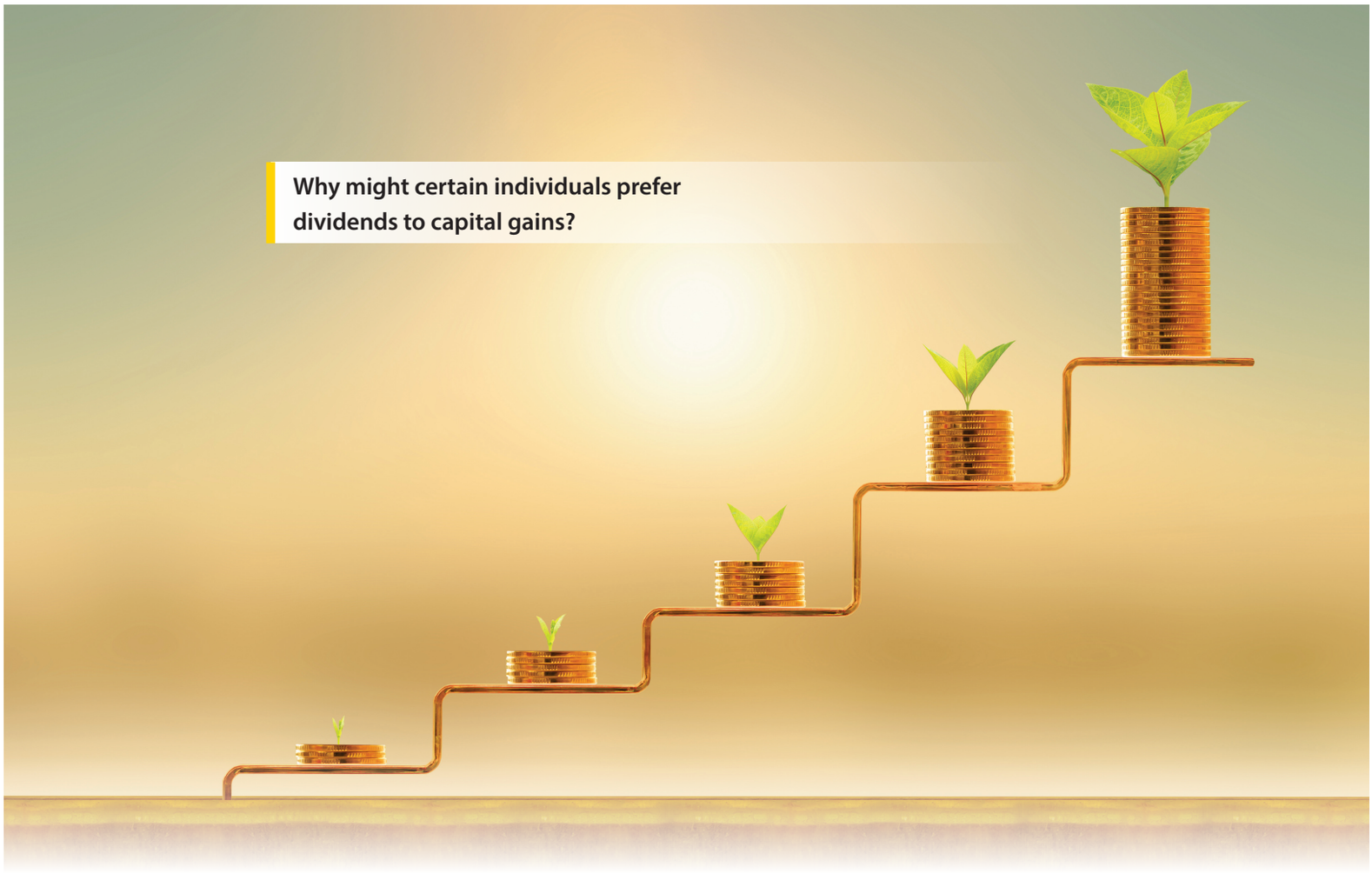
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 277 10/12/2024 15:13



Why might certain individuals prefer dividends to capital gains?

High-growth companies will often hold retained earnings to help grow the business. Stock investors in these growth stocks are more likely to want to see the value of their stock increase over time. Other companies may not have high growth, but they are known for paying dividends on a regular basis. These dividend stocks are often purchased by individuals who are more interested in the payment of dividends rather than the growth of the value of the stock.

It is important for Fahd to understand the company's investing shareholders as owners, and the transaction costs involved in financial decisions. **Financial transaction costs** are costs involved in the buying or selling of financial products.

Financial transaction costs
Costs involved in the buying or selling of financial products

Taxes typically have a major impact on financial decisions. However, in Saudi Arabia, Saudi citizens and citizens from Gulf Cooperation Council (GCC) nations don't pay income taxes on dividends or capital gains (profits from security sales). Instead, the citizens of Saudi Arabia pay Zakat,

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 278 10/12/2024 15:13

which is imposed at 2.5% on income allocated specifically for Zakat. In some countries, such as the United States, dividends and capital gains are taxed at different rates.

Fahd's company does have to pay Zakat of 2.5%. This has an impact on Fahd's funding strategy for the company. Dividend payments for both common and preferred stock are paid from retained earnings after taxes and Zakat are paid. Payments for debt are considered an expense and therefore lower the overall net profit of the company, reducing the taxes and Zakat paid on profits.

7.3a Cash Dividends

For a Saudi citizen, receiving dividends or selling stock to receive capital gains can have the same impact on income, depending upon transaction fees. For Fahd's company, there is an impact on how retained earnings are used to fund the operation of the business:

- If the company chooses the option to retain all earnings to support future growth, the equity of the stockholder increases.
- If the company decides to pay out all the retained earnings in cash dividends, then the stockholders have increased their overall return by receiving dividends.

Dividend policy is a question of how much of a company's earnings should be distributed. Companies that pay cash dividends usually have a policy that is either stated or implicitly known by the investment community. If a company pays a cash dividend, the amount is often stable and well known. The proportion of the earnings distributed is measured by the **payout ratio**, which is:

Payout ratio
The ratio of dividends to earnings per share

$$\text{Payout ratio} = \frac{\text{Dividend per share}}{\text{Earnings per share}}$$

EXAMPLE

A company announces a dividend of SAR 3 per share, having previously announced earnings of SAR 10 per share.

Therefore, the payout ratio is $\frac{3}{10}$, or 30%.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 279 10/12/2024 15:13

You Try It

A company is currently trading at SAR 200 per share. The company announces a dividend of SAR 6 per share.

What is the dividend yield on the stock?

Yield
The return on a stock expressed as dividend per share divided by the current share price

The average **yield** of dividend-paying companies on the Saudi Exchange was 3.25% in 2021. There were 30 companies that have been paying regular dividends for over 10 years at an average rate of 3.78%. If the SAR amount of the dividend is stable, the payout ratio will fluctuate with fluctuations in earnings. The stability of dividends coupled with fluctuations in earnings means that the amount of earnings retained varies each year and that management has decided to maintain a stable dividend at the expense of stable increases in retained earnings.

In Saudi Arabia, companies distribute cash dividends on a quarterly, semi-annual, or annual basis. As earnings grow, a company can increase its cash dividends.

Distributing dividends – the process

Distributing dividends takes time and the process is outlined in the following three steps:

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 280 10/12/2024 15:13

STEP 1

The first step is the dividend meeting of the company's board of directors. If they decide to distribute a cash dividend, two important dates are established. The first date determines who is to receive the dividend. On a particular day, the ownership books of the corporation are closed, and everyone owning stock in the company at the end of that day receives the dividend. This is called the **date of record**. If investors buy the stock after the date of record, they do not receive the dividend. The stock is purchased excluding the dividend; this is referred to as **ex dividend**, for the price of the stock does not include the dividend payment. When a stock goes ex-dividend, its price is adjusted downward for the dividend. This price change makes logical sense.

Date of record
The day on which an investor must own stock in order to receive the dividend payment

Ex dividend
Referring to stock purchases which do not entitle the buyer to the next dividend

STEP 2

The second important date is the day that the dividend is distributed, known as the **pay date** or **distribution date**. The distribution date may be several weeks after the record date, as the company must determine the owners on the record date and process the payment. The company may not perform this task itself; instead, it may use its commercial bank, for which the bank charges a transaction fee.

Pay date / Distribution date
The day on which a dividend is paid to stockholders

STEP 3

The day that the dividend is received by the stockholder is likely to be many weeks after the board of directors announced the dividend payment.



Why might a company's management decide to maintain a stable dividend?

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Ministry of Education
2016 - 1448

Business Finance reprint_1p.indb 281 10/12/2024 15:13

EXAMPLE

If a stock were selling for SAR 50 and paid a SAR 2 dividend, the stock could not be worth SAR 50 on the ex dividend date. If the price were not adjusted, an investor could buy the stock for SAR 50 the day before it went ex dividend, sell it for SAR 50 on the ex dividend date, collect the SAR 2 dividend, and net SAR 2. If one investor could make the SAR 2, everyone could make the SAR 2, but such easy profits do not happen. Instead, the price of the stock becomes SAR 48 on the ex dividend date. The investor's total position remains SAR 50, consisting of the SAR 48 stock plus the SAR 2 dividend

You Try It



A stock is trading at SAR 40 and announces a dividend of SAR 3 per share.

When the stock goes ex-dividend, what is the stock price likely to be?

Fahd wants to maximize the wealth of the company's stockholders, so the dividend decision basically depends on who has the better use for the money—the stockholders or the company. Fahd is unsure of the stockholders' need for money. If the stockholders like the dividend policy, they may purchase more shares. If the stockholders do not like the company's dividend policy, they may sell their shares. However, if the sellers exceed the buyers, the value of the shares will fall, and Fahd will become aware of the stockholders' preference for cash dividends instead of the retention of earnings.

7.3b Share Dividends

Share dividends
Stock that is given to stockholders as a return on their investment, often in place of cash

Some companies distribute **share dividends** in addition to (or instead of) cash dividends. Share dividends alter the entries on the company's equity section of its balance sheet, but they have no impact on the company's

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 282 10/12/2024 15:13

assets and liabilities. Since assets are neither increased nor decreased, share dividends do not affect the company's earning capacity. Share dividends transfer amounts from retained earnings to common stock and additional paid-in capital.

A share dividend does not increase an investor's wealth, but it does increase the number of shares the investor owns.

EXAMPLE

If an investor owned 100 shares at SAR 20 per share before the stock dividend, the investor had stock worth SAR 2,000 (100 shares x SAR 20). After the stock dividend, the investor owns 110 shares (the extra 10 shares resulting from the share dividends). However, the 110 shares are also worth SAR 2,000, as the price per share falls from SAR 20 to SAR 18.18 (SAR $\frac{2000}{110}$ shares).

The reason the stock price falls is that there are 10% more shares outstanding in the market, but there has been no increase in the company's assets and earning power. The old shares have been diluted and so the price of the stock must decline to indicate this **dilution**. If the price of the stock did not fall, all companies could make their stockholders wealthier by declaring stock dividends. But investors would soon realize that the stock dividend does not increase the assets and earning power of the company, and they would not be willing to pay the old price for a larger number of shares. The market price would fall to adjust for the dilution of the old shares, and that is what happens.

Dilution
Reduction in earnings per share as the result of issuing additional shares

You Try It



An investor owns 100 shares of stock trading at SAR 10. The company announces a share dividend at a rate of 1 for every 10 an investor owns.

Given a share dividend does not increase an investor's wealth, what price will the shares trade at after the dividend?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 283 10/12/2024 15:13

Fahd needs to determine if a share dividend would increase the ability of the company to grow. If a share dividend were a substitute for a cash dividend, the statement would be partially true, because the company still has the asset cash that would have been paid to stockholders if a cash dividend had been declared. The company, however, would still have the cash if it did not pay the share dividend, for a company could retain its cash and not pay a stock dividend. The decision to pay the share dividend does not increase the company's cash; it is the decision not to pay the cash dividend that conserves the cash.

7.3c Stock Splits

Stock split
A recapitalization achieved by changing the number of shares outstanding

After the price of a stock has risen substantially, management may choose to split the stock. A **stock split** lowers the price of the stock and makes it more accessible to investors. Implicit in this statement is the belief that investors prefer lower-priced shares and that reducing the price of the stock benefits the current stockholders by widening the market for their stock.

Like the stock dividend, the stock split does not alter the equity section on the balance sheet and it does not affect the assets or liabilities of the company. It does not increase the earning power of the company, and the wealth of the stockholder is not increased unless other investors prefer lower-priced stocks and increase the demand for this stock. In a two for one stock split, one old share becomes two new shares. There are no changes in the additional paid-in capital, retained earnings, or total equity. All that has happened is that there are now twice as many shares outstanding, and each share is worth half as much as an old share. Stock splits may be in any combination of terms, such as four for one or seven for four, but the most common splits are two for one or three for two. There are also reverse splits, which reduce the number of shares and raise the price of the stock.

All stock splits affect the price of the stock. With a two for one split, the stock's price is cut in half. A one for ten reverse split raises the price by a factor of ten. An easy method for finding the price of the stock after the split is:

$$\text{Price of stock after split} = \text{Stock price before split} \times \text{Reciprocal of the terms of the split}$$

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 284 10/12/2024 15:13

EXAMPLE

If a stock is selling for SAR 54 a share and is split three for two, then the price of the stock after the split will be:

$$\text{SAR } 54 \times \frac{2}{3} = \text{SAR } 36$$

You Try It



If a stock is selling for SAR 5.5 a share and there is a reverse split of one for two, what would the price of the stock be after the reverse split?
Show your work.

Fahd is evaluating whether he should recommend to the board that the company should split its stock. This would result in a lower selling price and could increase the marketability of the company shares. This could create a wider distribution of ownership and increase investor interest in the company. This increased interest and marketability may ultimately cause the value of the stock to appreciate. If demand for the stock increases, the current stockholders would benefit. However, the price increase in the stock's value in the exchange market would not increase the company's earnings. He could also recommend a reverse split. This would increase the price of the stock but would not increase the wealth of the shareholders.

7.3d Repurchase of Stock

A company with cash may choose to repurchase some of its stock. Stock repurchases (stock buy-backs) decrease the number of shares outstanding. Since the earnings will be spread over fewer shares, the earnings per share

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 285 10/12/2024 15:13

should increase. The higher per-share earnings may then lead to a higher stock price in the future. Repurchased stocks by the issuing company become treasury stocks. The company can hold these stocks, re-issue them, or cancel them. These shares are not part of the company's capital, and they don't pay dividends.

Fahd is considering repurchasing shares as an alternative to paying cash dividends. Instead of distributing the money as cash dividends, the company could offer to purchase the shares from the stockholders. This offers the stockholders a major advantage. They have the option to sell or retain their shares. If the stockholders believe that the company's potential is sufficient to warrant retention of the shares, they do not have to sell them. The decision to sell the shares rests with the stockholder. Figure 7.3 summarizes the stock strategies mentioned above.

FIGURE 7.3
Stock Strategies

Stock Policies	Owner Wealth Impact	Company Impact
Cash Dividends	Receiving dividends have an impact on income, depending on transaction fees.	Paying cash dividends lessens the growth in retained earnings for the company used to support future growth.
Share Dividends	Does not increase an investor's wealth, but it does increase the number of shares the investor owns.	Share dividends alter the entries on the company's equity section of its balance sheet, they have no impact on the company's assets and liabilities and have no affect the company's earning capacity.
Stock Splits	A stock split lowers the price of the stock and makes it more accessible to investors. If investors prefer lower-priced shares, then reducing the price of the stock benefits the current stockholders by widening the market for their stock.	Does not alter the equity section on the balance sheet and it does not affect the assets or liabilities of the company.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 286 10/12/2024 15:13

Stock Policies	Owner Wealth Impact	Company Impact
Repurchase of Stock	Stock repurchases (stock buy-backs) decrease the number of shares outstanding, increasing the earnings per share. The higher per-share earnings may then lead to a higher stock price in the future.	Repurchased stocks by the issuing company become treasury stocks. The company can hold these stocks, re-issue them, or cancel them. These shares are not part of the company's capital and they don't pay dividends.

FIGURE 7.3 ***continued***
Stock Strategies

Exercises

Choose the correct answer.

1. A stock dividend paid from company profits reduces a firm's total equity.

True / False

2. Dividends are paid on the:

a. declaration date.
b. ex dividend date.
c. date of record.
d. distribution date.

3. A share dividend:

a. reduces the firm's cash.
b. increases the firm's total equity.
c. decreases the firm's stock price.
d. increases the firm's assets.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 287 10/12/2024 15:13

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7.4 Preferred Stock

Key Term

Preferred stock

Preferred stock

The shares in a company that are owned by people who have the right to receive part of the company's profits before the holders of common stock

Preferred stock is a class of equity but is more like debt than common stock since it pays a fixed dividend return that may accumulate if it is not paid. **Preferred stock** gives holders a priority to receive a predetermined percentage of a company's profits, and priority over holders of common stock in obtaining rights in the event of a company's liquidation. Like common stock, preferred stock can be perpetual so the company never has to retire it, but the company can call back the preferred shares. Unlike common stockholders, preferred stock does not allow holders to vote. Issuing preferred stock provides equity and is included in share capital instead of being included as debt on a balance sheet.

Like many companies, Fahd's company has not issued preferred stock, although the company's articles of association allow for the issuance of preferred stock under Saudi Companies Law articles.

- Issuing preferred stock can provide additional capital for the company but will lock in a percentage of net profits to be paid to preferred stockholders.
- If Fahd's company fails to pay the specified percentage of their company's net profits in a given year, under the Saudi Companies Law, no dividends can be distributed for the following years except after payment of the percentage specified to holders of preferred shares.
- Fahd's companies don't have to retire the preferred shares like most debt, therefore, their preferred shares will often be purchased by investment firms rather than individuals.

7.4a Analysis of Preferred Stock

Because preferred stock is an income-producing investment for investors, Fahd's analysis is primarily concerned with the capacity of his company to meet the dividend payments. Although dividends must ultimately be

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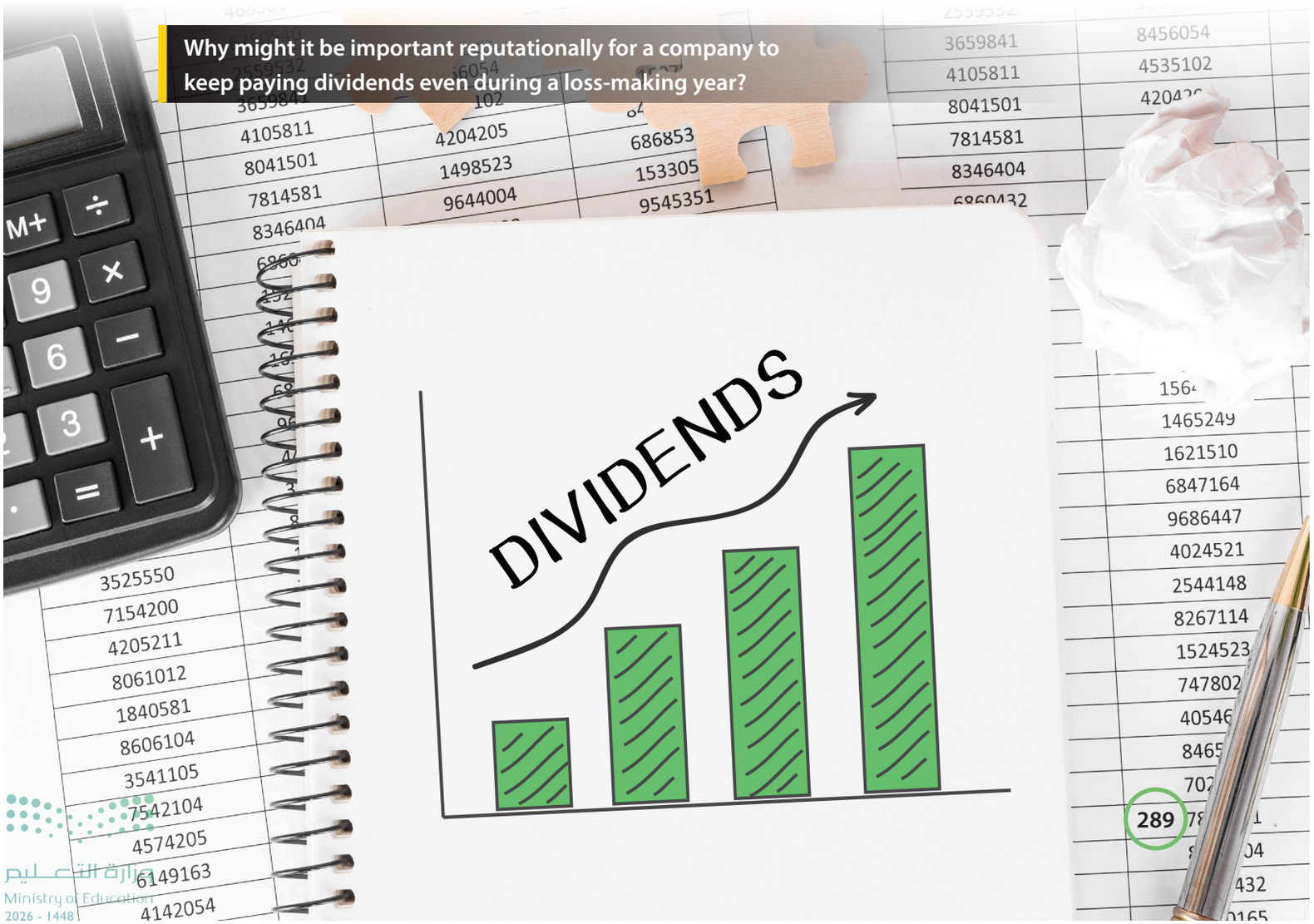
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 288 10/12/2024 15:13

related to current earnings and the company's future earning capacity, preferred dividends are paid from cash. Even if the company is operating at a loss, it may still be able to pay dividends to the preferred stockholders if it has sufficient cash. In fact, cash dividends might be paid despite the earnings deficit to indicate that the losses are expected to be temporary and that the company is financially strong.



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2026 - 1448

Exercises

Choose the correct answer.

1. Preferred stock dividends are paid after interest but before dividends to common stock.

True / False

2. Common features of preferred stock include:

a. variable dividends
b. skip dividends
c. adjustable dividends
d. fixed dividends

3. Dividends can be paid to the preferred shareholders even if the company is operating at a loss.

True / False

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 290 10/12/2024 15:13

7.5 Bonds

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Key Terms

Principal	Mortgage bonds
Maturity date	Asset-backed securities
Current yield/Yield to maturity	Convertible bonds
Coupon	Variable interest rate bonds
Indenture	Zero coupon bonds
Defaults	Debentures
Credit ratings	High-yield securities (junk bonds)

A bond is a fixed-income promise to pay, issued by a company or government representing a loan made by an investor to a borrower.

Fahd has considered raising capital by issuing bonds since the cost of funds raised through the issue of equity is higher than the cost of funds from bond issues.

7.5a Characteristics of All Debt Instruments

All bonds and other long-term debt instruments share several characteristics. They are liabilities of their issuers for a specified amount, called the **principal** (face value). Virtually all debt has a **maturity date**; it must be paid off by a specified date. If maturity occurs after a year, it is long-term debt. When this debt is issued, the length of time to maturity can range from a few years to 20 years or more. The owners of debt instruments receive payments (interest); this is sometimes called yield and may be expressed as **current yield** or **yield to maturity**. The payments are usually fixed and are often referred to as the **coupon**. Interest paid should not be confused with other forms of cash outlays for a company, such as cash dividends paid by common and preferred stock. Dividends come from the company's earnings, while interest is an expense to a company.

Each debt agreement has terms that the debtor must meet, and these are stated in a legal document called the **indenture**. One of the most frequent requirements is the pledging of collateral that the borrower must

Principal
The amount that a borrower owes

Maturity date
The date by which the debt must be repaid

Current yield/Yield to maturity
The rate of return on a bond investment

Coupon
The interest rate received by the bondholder

Indenture
Legal document specifying the terms of a debt issue

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 291 10/12/2024 15:13

put up to secure the loan. For example, the collateral for a mortgage loan is a building and land. Other assets, such as securities or inventory owned by the borrower, may also be pledged to secure the loan. If the borrower **defaults** on the loan (fails to pay the interest or fails to meet other terms of the indenture), the creditor may seize the collateral and sell it to recoup the principal.

Default
When the borrower fails to meet the terms specified in the indenture of a debt issue

Other examples of common loan restrictions are limits on dividend payments, limits on the issue of additional debt, and the requirement to periodically retire a proportion of the debt. These examples do not exhaust all the possible conditions of a given loan. Since each loan is separately negotiated, there is ample opportunity for subtle differences among loan agreements. The important point, however, is that if any part of the loan agreement is violated, the creditor may declare that the debt is in default and the entire loan is due. Default is not just the failure to pay the interest. Failure to meet any of the indenture provisions places the loan in default, even though the interest is still being paid.



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 292 10/12/2024 15:13

There are two influences on the expected return on debt instruments. This includes the expected market return and the perceived risk of a company's ability to pay interest and principal on debt. Fixed-income securities, such as preferred stock and fixed-rate bonds, offer no protection from inflation. If the rate of inflation increases, the real purchasing power of the dividend or coupon yield is diminished. In addition, increased inflation will probably lead to higher interest rate payments by new securities, which will drive down the market value of all current lower interest rate fixed-income securities, including preferred stock and bonds. Higher rates of inflation impact fixed-income, long-term securities through both decreased purchasing power of the dividend or yield, and the market value of the stock or bond will be diminished.

EXAMPLE

Assume a SAR 1,000 fixed rate bond pays 4% when the inflation rate is 2%. Investors are willing to pay SAR 1,000 to receive a yield, after considering inflation, of 2%. If inflation rose to 3%, what discount (less than the face value) would an investor be willing to pay for the fixed rate bond to maintain a 2% post-inflation return?

At 4%, the investor receives SAR 40 (SAR 1000 x 4%) per year.

Whereas inflation = SAR 1,000 x 2% = SAR 20. Therefore, the investor receives SAR 20 above inflation (SAR 40 – SAR 20).

With inflation at 3%, the investment would need to earn a return of 5% (Required Investment Return is: Inflation 3% + Return above inflation 2%) to maintain the 2% $\left(\frac{20}{1000}\right)$ above inflation.

So, the annual payment is still at SAR 40. Thus the new price will be

SAR New Bond Price x Required Investment Return % = Annual Payment

SAR New Bond Price x 5% = SAR 40

$$\text{SAR New Bond Price} = \text{SAR}\ \frac{40}{0.05} = \text{SAR } 800$$

The above formulas showed that the bond price could drop to SAR 800 for an investor to maintain their 2% above inflation return.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 293 10/12/2024 15:13

You Try It



Assume a SAR 1,000 fixed-rate bond pays 5% when the inflation rate is 3%. Investors are willing to pay SAR 1,000 to receive a yield, after considering inflation, of 2%. If inflation drops to 2%, what premium (above the face value) would an investor be willing to pay for the fixed rate bond to maintain a 2% post-inflation return?

Another characteristic of all debt is risk. This includes the risk that the interest will not be paid, the risk that the principal will not be repaid, the risk that the price of the debt instrument may decline, and the risk that inflation will erode the purchasing power of the interest payments and principal repayment. The riskier a company's ability to pay interest and principal on the debt, the higher the expected return for that debt.

Credit ratings

Credit ratings
Classification schemes designed to indicate the risks associated with a particular debt instrument

Measures of the perceived riskiness of a company are determined by credit rating agencies. In Saudi Arabia, **credit ratings** must be assigned by an authorized credit rating agency, which includes agencies incorporated in Saudi Arabia and foreign credit rating agencies. Rating agencies may use different rating systems:

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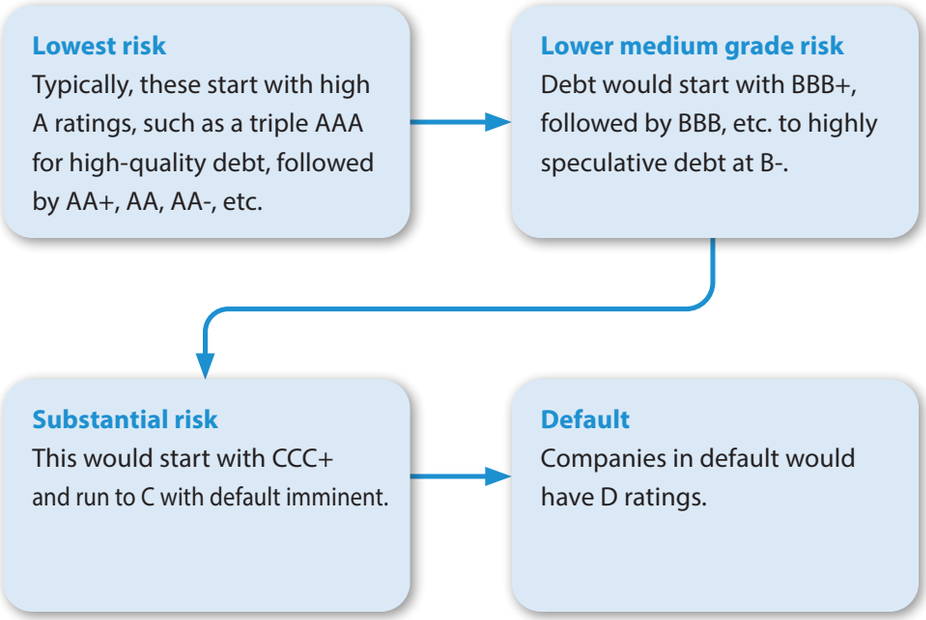
Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 294 10/12/2024 15:13



Since the risk of default may be substantial for poor-quality debt, some financial institutions and investors will not purchase debt with a low credit rating.

Fahd knows that if his company issues bonds, and the lenders anticipate inflation, they will demand a higher rate of interest to help protect their purchasing power. In addition, Fahd's company has never issued securities and does not yet have a credit rating. Fahd also knows that if his company sells bonds they could be resold in the open market at a premium or discount.

For his bond investors, one feature of the bond debt that partially compensates for the risk of price fluctuations is that when debt ultimately matures, the principal must be repaid. If the price falls and the debt instrument sells for a discount, the price of the bond must appreciate as it approaches maturity. For on the day it matures, his company must pay the full amount of the principal. Figure 7.4 shows a bond purchased in an open market at a discount (at SAR 90 as an example), and the bond price begins to converge on the face value (SAR 100) as it approaches maturity.

FIGURE 7.4

A discounted bond approaching maturity



7.5b Types of Corporate Bonds

All bonds have some level of risk. Secured bonds are tied to a specific asset that is used as collateral to secure the loan and therefore have less risk for an investor than unsecured bonds. Figure 7.5 outlines types of corporate bonds, their features, and the riskiness for investors.

FIGURE 7.5

Types of Corporate Bonds

Mortgage bonds
A form of loan that is secured by a claim on real estate

Asset-backed securities
Bonds issued to finance activities that generate income

Convertible bonds
A form of loan that may be converted into (exchanged for) stock at the option of the person who has taken it out

Types of Bond	Features	Investor Risk
Mortgage Bond	Secured to a specific real estate asset, such as a building.	Less risky
Asset-Backed Securities	Issued to finance activities that generate income. For example, issued to finance the construction of a parking garage secured by the parking fees. If the issuer fails to make the required payments on these secured bonds, the investors can take possession of the specified asset or assets and use them to recoup the money due.	Less risky
Sukuk	Shariah-compliant financial certificates like asset-backed securities. The investor gains partial ownership of an issuer's assets providing a yield based on the annual rate of return for the security until the sukuk maturity date.	Less risky
Convertible bonds	Allows the holder the option to exchange the bond for a predetermined number of shares of common stock based on a conversion ratio.	Less risky

CONTINUED

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 296 10/12/2024 15:13

Types of Bond	Features	Investor Risk
Variable Interest Rate Bonds	Bond payments vary with changes in the rate of inflation or changes in market interest rates. Also called floating rate notes.	Less risky
Zero Coupon Bonds	Sells for a discount from face value. The discount on the bond is determined by the length of time to maturity and the specified interest to be accrued. At maturity, the investor receives the bond's face value.	Less risky
Debentures	Unsecured bonds are supported by the general credit of the company.	Riskier
High-Yield Securities	Name given to debt of low-quality bonds rated below triple B typically subordinated to the company's other debt. Also called junk bonds.	High Risk

FIGURE 7.5 ***continued***

Types of Corporate Bonds

Variable interest rate bonds

Long-term debt instruments whose interest payments vary with changes in short-term interest rates or the Consumer Price Index

Zero coupon bonds

A form of loan that is initially sold at a discount and on which interest accrues and is paid at maturity

Debentures

Unsecured bonds supported by the general credit of the company

High-yield securities (junk bonds)

Poor-quality debt with high returns and high probability of default

What does a bond with a floating rate protect against?



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 297 10/12/2024 15:13

Exercises

Choose the correct answer.

1. Credit ratings for companies are assigned by the Saudi government.

True / False

2. If interest rates increase due to inflation:

a. the prices of bonds and preferred stock increase

b. the price of bonds increases but the price of preferred stock decreases

c. the prices of bonds and preferred stock decline

d. the price of bonds decreases but the price of preferred stock increases

3. Convertible bonds allow the holder the option to exchange the bond with a predetermined number of shares of common stocks.

True / False

4. Which of the following bonds is supported by collateral?

a. unsecured bonds

b. income bonds

c. mortgage bonds

d. debentures

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 298 10/12/2024 15:13

7.6 Retiring Debt

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Key Terms

Retiring debt
Call feature
National debt

Retiring debt is when a borrower pays back the money they owed in full. Fahd knows that any debt issued by his company must ultimately be repaid, and this repayment must occur before the maturity date. When the bond is issued, a method for periodic retirement is usually specified, as very few debt issues are retired in one lump payment at the final maturity date. Instead, part of the issue is systematically retired each year. This systematic retirement may be achieved by issuing the bond in series. In addition, dramatic changes in interest rates may cause a corporation to retire bonds before maturity by repurchasing or by calling the debt.

Retiring debt
When a borrower pays back the money they owed in full

If interest rates rise and bond prices decline, Fahd's company may retire the debt by repurchasing it. Fahd can repurchase bonds from time to time, and sellers of the bonds may not know that the company is purchasing and retiring the bonds. Fahd's company could also announce the intention to purchase and retire the bonds at a specified price. The bondholders may sell their bonds at the specified price.

EXAMPLE

If the bonds are selling at a discount, Fahd's company has an advantage in retiring debt. If a SAR 1,000 bond is currently selling for SAR 800, Fahd's company reduces its debt by SAR 1,000 with only a SAR 800 outlay in cash. There is a SAR 200 saving from purchasing and retiring the debt at a discount. This gain is classified as income for the firm's stockholders.

Fahd knows that this strategy may appear to be a desirable means to retire debt; however, using money to repurchase debt is an investment decision just like buying plant and equipment. If the firm repurchases the debt, it cannot use the money for other purposes. Fahd needs to determine which is the better use of the money—purchasing other income-earning assets or retiring the debt.

7.6a Calling the Debt

Call feature
The right of a debtor to retire a bond prior to maturity

Some bonds have a **call feature**, which permits the issuer to redeem the bond prior to maturity. If interest rates fall after a bond has been issued, it may be advantageous for the company to issue a new bond at the lower interest rate. The proceeds can then be used to retire the older bond with the higher interest rate. The company "calls" the older bond and retires it. This refunding hurts the bondholders, who lose the higher-yielding instruments. To protect these creditors, a call feature usually has a call penalty, such as a year's interest.

EXAMPLE

If the initial issue had a 9% interest rate, the company would have to pay SAR 1,090 to retire SAR 1,000 worth of debt. While such a call penalty does protect bondholders, a company can still refinance if interest rates decline enough to justify paying the call penalty.

7.6b Government Securities

In addition to corporations, governments issue a variety of debt instruments to raise capital from individuals, firms, and other governments with funds to invest. The general features of these securities are essentially the same as corporate debt; they pay interest and must be retired at some specified time in the future. If the securities are callable, the debt is often issued in series so that a specified series periodically matures. Governments issue securities that range from short-term to long-term. These securities emphasize short- to intermediate-term financing, primarily because interest rates on short-term debt are usually less than on long-term debt.

1. **Notes**: government securities that mature within 10 years or less.
2. **Bonds**: securities that mature in more than 10 years.
3. **Bills**: matures in less than one year.

The Saudi Arabian National Debt Management Center (NDMC) has the role to secure the Kingdom's financing needs at a fair cost and with acceptable levels of risk. The NDMC:

- works to secure the Kingdom's financing needs at the best possible costs through short-, medium-, and long-term issuance of securities;

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 300 10/12/2024 15:13

- develops an annual borrowing plan for Saudi Arabia to address debt management guidelines, risk management, the calendar for local sukuk issuances, and debt issuance guidelines; and
- structures its borrowing activities to issue securities both domestically and internationally.

Sukuks are issued for the domestic market. International financing is through sukuk and medium-term notes offered in dollars and Euros.

Government securities are among the safest investments and are rated by the same rating agencies use for corporate securities. Although they are considered to be largely risk free, there are ways in which an investor can lose when investing in these securities. Changes in the current rate of interest cause security prices to fluctuate. An investor could purchase government security and its market price could decline. There is also the risk associated with exchange rates. The NDMC evaluates the exchange risk of its international debt issues. The Saudi Riyal is tied to the U.S. Dollar, so there is minimal exchange risk there. However, the value of the Euro to the Riyal floats with exchange markets. If the Euro increases in strength, it will take more Riyal to pay back a Euro denominated loan. If the Euro decreases in strength, it will take less Riyal to pay back the loans.

Fahd knows that the yield rates on risk-free government securities impact the expected returns on company securities since their risk is normally higher. He watches the rates offered by the Saudi government treasury bills to determine the return his company will need to offer for its securities.

7.6c National Debt

National debt, also called government debt, or public debt, is the total outstanding obligations of a country. Countries borrow funds to cover deficits between national income from taxes and other sources, and national expenditures. Countries may also borrow to invest in their development, such as building infrastructure.

National debt
The total outstanding obligations of a country

The total debt is less important than its proportion to the country's gross domestic product (GDP), as determined by the debt-to-GDP ratio. In Saudi Arabia, the NDMC monitors the debt-to-GDP ratio. In 2020, the ratio was at 32.4% and was expected to drop to 25.9% by 2022. Other countries can

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 301 10/12/2024 15:13

have very high debt-to-GDP ratios. In 2020, Greece's ratio was over 225% and the United States' ratio was 119%. High levels of the debt-to-GDP ratio could indicate financial risk, resulting in higher borrowing costs for the country.

Exercises

Choose the correct answer.

1. Many bonds have a call feature, which permits the firm to retire the bonds prior to maturity.

True / False

2. If interest rates rise after a bond has been issued, it may be advantageous for the company to call the bond.

True / False

3. Bonds may be retired prior to maturity by (1) repurchases, (2) new issue, (3) a call feature:

a. 1 and 2
b. 1 and 3
c. 2 and 3
d. 1, 2, and 3

4. The call feature permits the issuer to redeem a bond prior to maturity.

True / False

5. The total debt is less important than its proportion to the country's gross domestic product (GDP).

True / False

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 302 10/12/2024 15:13

Chapter 7 Assessment

SUMMARY

Fahd must evaluate multiple alternatives to develop a funding strategy for his company. Stock represents ownership (equity) in a corporation. Common stockholders are the residual owners and have the final claim on a corporation's earnings and assets after the company's obligations to creditors and preferred stockholders have been met. Common stockholders have the right to vote their shares and elect the company's board of directors. Once a corporation has generated earnings, the earnings are either distributed or retained. The retention of earnings is an important source of funds for corporations and increases the stockholders' investment in the company. Retained earnings may be used to finance future growth or to retire existing debt.

Many corporations distribute a part of their earnings as cash dividends. Some corporations pay share dividends, which increase the number of shares but do not decrease the company's assets. Stock splits alter the number of outstanding shares and, like share dividends, do not affect the company's assets, liabilities, or earning capacity. Stock splits and share dividends affect the price of the stock in proportion to the number of shares issued. Corporations can elect to repurchase shares as an alternative to distributing cash dividends. If current stockholders want to retain their ownership in the company, they may choose not to sell their stock.

On the other hand, preferred stock is more like bonds than common stock. As preferred stock:

1. pays a fixed dividend that may accumulate if it is not paid;
2. is perpetual, in which case the company never has to retire it; and
3. may be callable.

Other issues including bonds, however, have mandatory repayment of the principal at a specified date. The dividends paid to preferred stockholders are distributions from earnings. Unlike interest payments to bondholders, preferred dividends are not tax-deductible expenses. The lack of tax deductibility reduces the attractiveness of preferred stock to issuers.

Since preferred stock pays a fixed dividend, its valuation is the same as a bond. Higher interest rates cause the prices of preferred stocks to fall, but lower interest rates cause their prices to rise. Analysis of a preferred stock is based upon the company's ability to cover (that is, pay) the dividend.

A corporation may issue a variety of bonds, ranging from secured mortgage bonds. The terms of each bond issue include the coupon rate of interest and the maturity date. The risks associated with investing in bonds include defaulting

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 303 10/12/2024 15:13

on interest and principal repayments, increased interest rates that decrease the current market value of the bond, and the loss of purchasing power through inflation. Bonds may also be callable, which permits the issuer to pay off the entire issue prior to maturity. If interest rates rise and cause a bond's price to fall, it would be more advantageous for the issuer to repurchase the bonds than to call and retire them at par.

Governments, as well as corporations, issue bonds. The general features and risks associated with investing in government bonds are the same as with corporate bonds. The rate of return on government securities is dependent upon the perceived risk of the bonds, including the debt-to-GDP ratio.

QUESTIONS

1. Describe the features of common stock.

2. Explain the impact of retaining earnings versus paying cash dividends on a corporation's balance sheet.

3. Identify the important dates for the distribution of a cash dividend.

4. Compare the impact of a cash dividend, stock dividend, and stock split on a company's balance sheet.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 304 10/12/2024 15:13

5. List the features of preferred stock.

6. Describe the general characteristics of bonds.

7. Explain the relationship between changes in interest rates and the price of preferred stocks and bonds.

8. List the types of corporate bonds.

9. Explain how a country's debt-to-GDP ratio could influence the borrowing costs for the country.

10. The Saudi Construction Corporation (SCC) wants to issue new bonds. SCC's credit rating has changed from AA to AA+. How will this impact the expected return by investors for this new bond issue?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 305 10/12/2024 15:13

EXERCISES

1. Saudi Construction Corporation (SCC) earns SAR 9 per share, sells for SAR 90, and pays a SAR 6 per share dividend. SCC has the following balance sheet:

All Numbers in SAR (million)	
Balance Sheet	Start of Year
Assets	150
Liabilities and Equity	
Debt	60
Owner's Equity	
Share Capital	X
Retained Earnings	40
	150

a. What is the amount of share capital for SCC?

b. What is the payout ratio for SCC?

c. The stock is split two for one. What will be the new price of the stock?

d. What will be the price of SCC's stock when dividends are paid?

e. Next year, SCC plans to use all of its annual profits to pay cash dividends. How will this change retained earning?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 306 10/12/2024 15:13

2. Saudi Construction Corporation (SCC) has issued a SAR 1,000 fixed rate bond paying 3.5% when the inflation rate is 2.5%. If inflation rises to 3.5%, what is the discount an investor would be willing to pay for the fixed rate bond to maintain a 1% post-inflation return?

3. Why might SCC consider issuing bonds instead of preferred stock?

ASSESSMENT QUESTIONS

Choose the correct answer

1. The owners of a corporation elect the board of directors.
   True / False
2. Which of the following is equity: 1. investments, 2. additional paid-in capital, 3. retained earnings?
   - **a.** 1 and 2
   - **b.** 1 and 3
   - **c.** 2 and 3
   - **d.** 1, 2, and 3
3. A cash dividend reduces the firm's ability to increase assets.
   True / False
4. Financial transaction costs are costs involved in buying or selling in financial transactions.
   True / False
5. Stock repurchases:
   - **a.** increase per share earnings.
   - **b.** decrease per share earnings.
   - **c.** increase liabilities.
   - **d.** decrease liabilities.

6. Preferred stock shares are often purchased by investment firms rather than individuals.

   True / False

7. The document stating the terms of a bond is the indenture.

   True / False.

8. Treasury bills are short-term debt issued for less than one year.

   True / False.

9. Government securities: 1. pay interest, 2. must be retired at some specified time in the future, 3. may be callable.

   a. 1 and 2

   b. 1 and 3

   c. 2 and 3

   d. 1, 2, and 3

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your choice	Definition
1. Acquisition		**a.** A form of loan that is secured by a claim on real estate
2. Articles of association/ Articles of incorporation		**b.** The right of current stockholders to maintain their proportionate ownership in the company
3. Asset-backed securities		**c.** A document that provides information about an investment such as a stock or mutual fund
4. Board of directors		**d.** The total outstanding obligations of a country
5. Call feature		**e.** When a borrower pays back the money they owed in full
6. Cash dividends		**f.** A recapitalization achieved by changing the number of shares outstanding
7. Common stock		**g.** Classification schemes designed to indicate the risks associated with a particular debt instrument
8. Convertible bonds		**h.** Bylaws, or procedures, for the operation of a joint stock company

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 308 10/12/2024 15:13

Term	Your choice	Definition
9. Coupon		**i.** Security representing ownership in a corporation; those who own these securities have a final claim on the firm's assets and earnings after the firm has met its obligations to creditors and preferred stockholders
10. Credit ratings		**j.** The ratio of dividends to earnings per share
11. Current yield / Yield to maturity		**k.** The shares in a company that are owned by people who have the right to receive part of the company's profits before the holders of common stock
12. Date of record		**l.** Bonds issued to finance activities that generate income
13. Debentures		**m.** The purchase of a company by another company
14. Default		**n.** The return on a stock expressed as dividend per share divided by the current share price
15. Dilution		**o.** The day on which a dividend is paid to stockholders
16. Ex dividend		**p.** Body elected by and responsible to stockholders to set policy and hire management to run a corporation
17. Financial transaction costs		**q.** Accumulated profit after dividends
18. High-yield securities (junk bonds)		**r.** When the borrower fails to meet the terms specified in the indenture of a debt issue
19. Indenture		**s.** The interest rate received by the bondholder
20. Maturity date		**t.** A claim to a share of earnings after a debt has been settled
21. Mortgage bonds		**u.** The amount that a borrower owes
22. National debt		**v.** A form of loan that may be converted into (exchanged for) stock at the option of the person who has taken it out
23. Pay date/ Distribution date		**w.** Poor-quality debt with high returns and a high probability of default
24. Payout ratio		**x.** Long-term debt instruments whose interest payments vary with changes in short-term interest rates or the Consumer Price Index
25. Preemptive rights		**y.** The right of a debtor to retire a bond prior to maturity
26. Preferred stock		**z.** The entitlement to subscribe to new shares listed during a capital increase, such as the sale of new stock shares
27. Principal		**za.** Distribution from earnings paid into the bank accounts of shareholders

Term	Your choice	Definition
28. Prospectus		**zb.** Reduction in earnings per share as the result of the issuing of additional shares
29. Retained earnings		**zc.** The day by which a debt must be repaid
30. Retiring debt		**zd.** The rate of return on a bond investment
31. Residual claim		**ze.** Costs involved in the buying or selling of financial products
32. Share dividends		**zf.** A legal form of loan that is initially sold at a discount and on which interest accrues and is paid at maturity
33. Stock split		**zg.** The day on which an investor must own stock in order to receive the dividend payment
34. Tradable rights		**zh.** Unsecured bonds supported by the general credit of the company
35. Treasury shares		**zi.** A legal document specifying the terms of a debt issue
36. Variable interest rate bonds		**zj.** Stock that is given to stockholders as a return on their investment, often in place of cash
37. Yield		**zk.** Referring to stock purchases which do not entitle the buyer to the next dividend
38. Zero coupon bonds		**zl.** Stock held by the company for use as employee stock

KEY FORMULAS

Price of stock after the split = Stock's price before the split x Reciprocal of the terms of the split.

$$\text{Payout ratio} = \frac{\text{Dividend per share}}{\text{Earnings per share}}$$

$$\text{New bond price after inflation SAR} = \frac{\text{Annual payment SAR}}{\text{Required investment return \%}}$$

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 310 10/12/2024 15:13

MINI CASE 7.1

Company Stock Issues

A successful medium-sized roast chicken restaurant is planning on expanding to multiple cities in Saudi Arabia. This will require new capital to purchase assets such as buildings, equipment, and restaurant inventory. The owners of the business believe that they will become profitable four years after their expansion. The business has existed as a joint stock company for five years and has a board of directors. Current investors are the only people holding stock in the company, but the business is now planning to issue common stock to the public to fund the expansion.

Task

1. Describe the implications for the company of issuing common stock to the public.

2. Make a recommendation for or against paying dividends to common stockholders over the next four years.

3. When the company is profitable after expansion, evaluate the advantages and disadvantages of issuing cash dividends versus share dividends.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 311 10/12/2024 15:13

MINI CASE 7.2

Preferred vs Common Stock

A friend of yours, Ziad, is looking to obtain additional personal income from investing in stock. He has evaluated a number of companies and is considering two options. The first is to purchase common stock from a business that has paid regular dividends over the last five years. He is also considering purchasing preferred stock in a different company. He has come to you for advice on these two options.

Task

1. Provide Ziad with the advantages and disadvantages for an investor in purchasing common stock.

2. Provide Ziad with the advantages and disadvantages for an investor in purchasing preferred stock.

3. Justify a recommendation you would give to Ziad.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 312 10/12/2024 15:13

MINI CASE 7.3

Bonds

A large Saudi retailer management team is debating if they should reduce short-term and medium-term bank debt with the issuance of bonds. The retailer is a joint stock company. It has multiple locations and owns its buildings. The retailer's credit rating is BBB+. Some members of management believe that inflation will increase in the future.

Task

1. Outline for management the advantages and disadvantages of issuing bonds.

2. Describe the different types of bonds the company could issue. What does a rating of BBB+ mean?

3. Outline the advantages of retiring or calling the issued bonds.

Business Finance reprint_1p.indb 313 10/12/2024 15:13

CASE STUDY: SOURCES OF FUNDING

The chief executive officer (CEO) of a telecommunication company, Fatimah, wants to be a strong participant in meeting the Saudi Vision 2030 goal of providing high-speed 5G broadband coverage in Saudi Arabia's rural zones. Fatimah's joint stock company will need to set up new cellular broadcast towers and mobile hotspots in remote areas. This will require new sources of funding for the company. Fatimah is working with her chief financial officer, Saad, on developing a funding plan to present to the company's board of directors.

The board wants to ensure that current stockholders have the opportunity to maintain their percentages of voting shares. Saudi banks are potential investors, but Fatimah is concerned that current shareholders could lose control of the company if banks become major shareholders. Fatimah's company has been profitable and has paid dividends on a regular semi-annual cycle. This has resulted in a high stock price compared to other telecommunication companies. The company has a strong credit rating from both Saudi and international rating agencies, but this expansion into rural areas of Saudi Arabia does increase risk for the company.

Saad has identified several alternatives for funding this expansion. These include:

1. Suspending dividend payments to increase the retained earnings in the company to fund expansion.
2. Issuing additional shares of common stock.
3. Issuing shares of preferred stock.
4. Issuing bonds.
5. Issuing sukuk where investors become partial owners of the new equipment to be deployed in the rural expansion.
6. Developing callback and/or convertible strategies for security issues.

Fatimah says to Saad, "Thank you for the alternative funding ideas. Obviously, we will need some combination of these various sources. Given the directives from the board, please develop a list of the advantages and disadvantages of each of these strategies. We can then identify our strategy and work on a communication plan for the board and our current shareholders."

Saad replies, "I will do that right now. We need to keep in mind that this expansion will increase the overall risk exposure for our firm. This may give us an ability to negotiate with the banks for their investing options."

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 314 10/12/2024 15:13

Study Questions

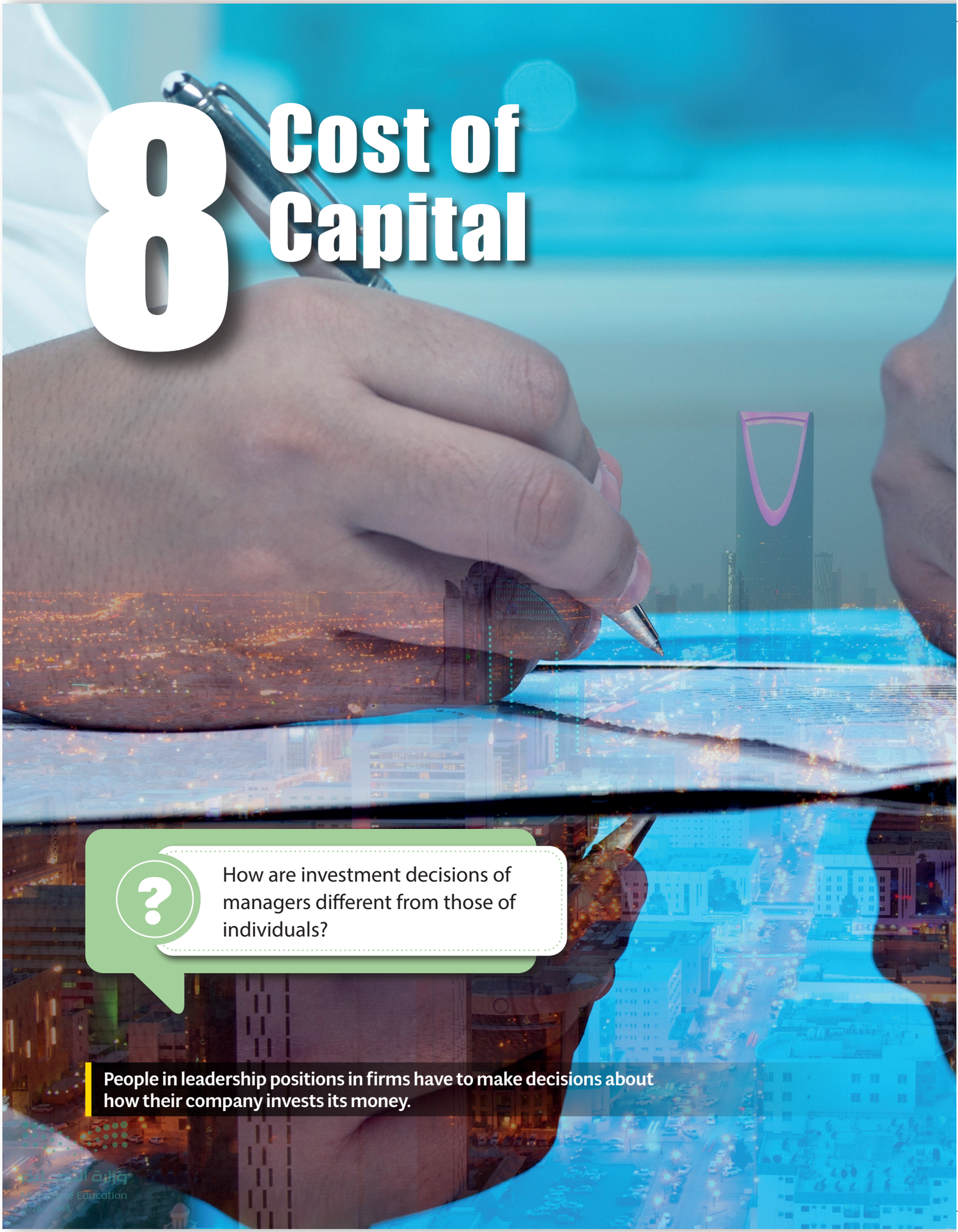
1. Combine any two of the six given sources, and explain the advantages and disadvantages of your combination.

2. What is your funding recommendation for Fatimah's company regarding your chosen combination?

3. How could the risk of this new expansion impact Fatimah's funding plans?

Online Activity

Go to the Saudi exchange (Tadawul) website. Search for "telecommunication companies". For one telecommunication company, identify dividend policies, if any. View the balance sheet statement to identify the amount of the company's shareholder's equity and if this has increased or decreased over time.



8 Cost of Capital

How are investment decisions of managers different from those of individuals?

People in leadership positions in firms have to make decisions about how their company invests its money.

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LEARNING OBJECTIVES

Once you have completed this chapter, you should be able to:

1. Identify the components of a company's capital structure.
2. Describe factors that affect the cost of debt, the cost of preferred stock, and the cost of common stock.
3. Calculate the weighted-average cost of capital.
4. Determine the optimal capital structure of a company.
5. Describe the characteristics of all debt instruments.

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Ministry of Education
2026 - 1448

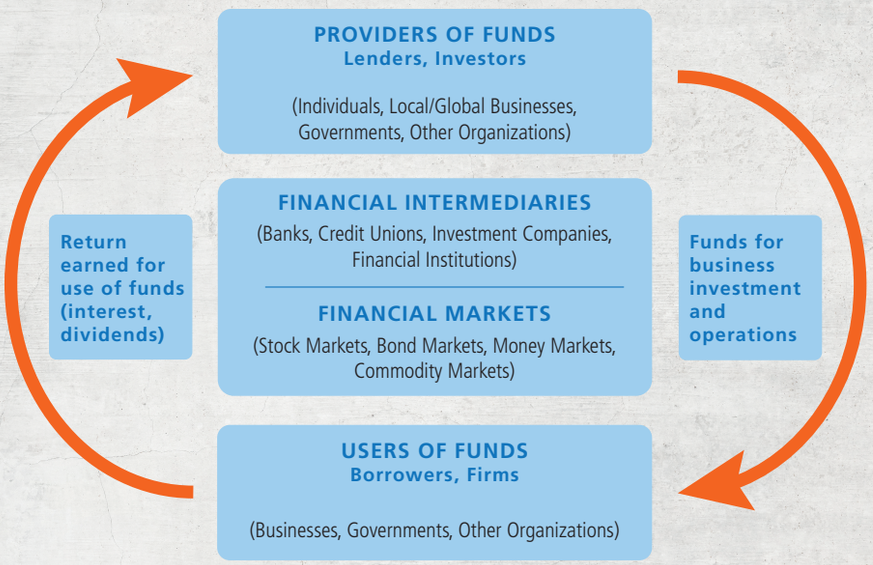
Business Finance reprint_1p.indb 317 10/12/2024 15:13

The process for making investment decisions by the financial manager of a company is similar to you selecting a personal stock investment. They either compare the present value of future cash inflows with the current cost of the investment or they compare the investment's expected return with the required return.

Investing in equipment, a building, or other capital item requires an estimate of the cost of funds to finance the purchase of the asset. That amount is referred to as the cost of capital and depends on the cost of the various sources of funds. A firm may borrow from a variety of sources and may issue preferred and common stock to raise funds. As shown in Figure 8.1, the financial market environment brings together providers and users of capital funds for the purpose of obtaining financing for company business activities.

Lenders and stockholders expect to earn a return for the funds they provide. Creditors require interest payments, and stockholders want dividends and price appreciation. All sources of funds have a cost, so the question becomes: What is the best combination of debt and equity financing that *minimizes* the firm's cost of capital? That combination is called the firm's *optimal capital structure*.

FIGURE 8.1
The Financial Market Environment



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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 318 10/12/2024 15:14

financing that *minimizes* the firm's cost of capital? That combination is called the firm's *optimal capital structure*.

This chapter is concerned with the determination of the cost of capital and the firm's optimal capital structure. Companies use cost of capital to select various competing uses for the firm's capital. This chapter begins with the costs of the various components in the firm's capital structure. This is followed by a discussion of the weighted cost of capital and the determination of the optimal capital structure. Once this capital structure has been determined, it should be maintained, as it generates the lowest cost of funds while maximizing the stock value of the company.

What process does the financial manager use for making investment decisions?



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2026 - 1448

Business Finance reprint_1p.indb 319 10/12/2024 15:14

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8.1 Cost of Capital Components

Key Terms

Cost of capital
Cost of debt
Cost of equity
Cost of preferred stock
Cost of common stock
Flotation costs

Cost of capital
Also called required rate of return, this is the rate required by lenders and investors who are letting the company use their money

When a company uses the money of others for its business activities, stockholders and creditors are paid for the use of these funds. **Cost of capital**, also called the *required rate of return*, is the rate required by lenders and investors who are letting the company use their money. The three main sources of money used by a company are:

1. debt;
2. preferred stock (a type of equity); and
3. common stock (another type of equity).

8.1a Cost of Debt

Cost of debt
The rate of return required by creditors

Borrowing is a common practice among organizations. Bonds, loans, and other types of debt are major funding sources. **Cost of debt** is the rate of return required by creditors. This percentage is the rate that lenders expect to receive when allowing someone to use their money. Common benefits associated with using debt include:

- The company is using the money of others, allowing the business to keep its funds available for other uses.
- The risk for creditors is lower since the borrower is legally obliged to repay the debt so they are more likely to get their money back compared to other types of financial backing.
- The cost of capital is lower than other funding sources because of the lower risk for lenders (creditors).
- Interest payments on debt are tax deductible as a business expense.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 320 10/12/2024 15:14

The after-tax cost of debt (k_d) depends on the interest rate (i), and the tax rate (t). This can be expressed as:

$$k_d = i(1 - t)$$

EXAMPLE

If the interest rate is 7.6% and the tax rate is 35%, the after-tax cost of debt is:

$$0.076\ (1 - 0.35) = 0.0494 = 4.94\%$$

What are some of the advantages of a company using debt to fund their activities?



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2026 - 1448

Business Finance reprint_1p.indb 321 10/12/2024 15:14

You Try It

A 10% cost of debt with a 20% tax rate would result in an after-tax cost of capital of _____ %.

_____

_____

In addition to the tax rate, the cost of debt for a company is also influenced by these factors:

- **The current cost of borrowing**. A company may have outstanding debt that was issued in the past. Due to changing economic conditions, the interest rate on that debt is probably higher or lower than current rates. In determining the current cost of the debt, the current interest rate is used.
- **The length of the borrowing term**. Short-term debt will usually have a lower interest rate than long-term debt. If a company issues long-term debt, the rate is usually higher than short-term financing due to the uncertainty over time in the future. However, the use of long-term debt avoids the risk associated with refinancing short-term debt.
- **The riskiness of the firm**. The risk is related to the nature of the business (business risk) and to the use of debt (financial risk). The more the firm uses debt financing, the greater the potential will be for it to fail to meet its debt obligations. This increase in the risk of default means that as the firm's use of financial leverage increases, the interest rate on borrowed money will increase. This is illustrated by the line k_d in Figure 8.2. Initially, the cost of debt may be stable, as the firm uses more debt without increasing risk for the creditors. However, as the use of debt increases, the cost of debt starts to rise because creditors demand more interest due to an increased risk of loss.

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2026 - 1448

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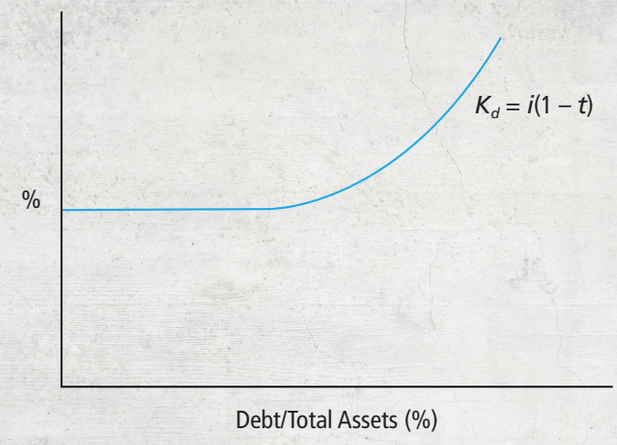

FIGURE 8.2
Cost of Debt

8.1b Cost of Preferred Stock

The required rate of return for stockholders is not as easily determined as it is for creditors. The cost of debt is usually set by the rate charged for borrowing funds. In contrast, **cost of equity** is the required return of the owners in a company. This amount is the percentage company owners expect to earn based on the money they have invested in the company. Two types of equity are used by corporations:

Cost of equity
The required return company owners expect to earn based on the money they have invested in the company

1. preferred stock; and
2. common stock.

The value of preferred stock depends on the dividend and the yield required to prompt investors to buy the shares. The valuation of preferred stock can be expressed as:

$$P_p = \frac{D_p}{k_p}$$

P_p is the price of the preferred stock, D_p is the dividend paid by the preferred stock, and k_p is the return required by investors. This equation may be rearranged to isolate the yield or the firm's cost of preferred stock with these two steps:

1. $P_p \times k_p = D_p$
2. $K_p = \frac{D_p}{P_p}$

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 323 10/12/2024 15:14

Cost of preferred stock
The relationship between the dividend from dividend-paying shares in a firm and the market price

As a result, the **cost of preferred stock** is the relationship between the dividend from dividend-paying shares in a firm and the market price.

EXAMPLE

If the preferred stock pays a SAR 1.00 dividend and sells for SAR 12, the cost of the preferred stock to the firm is:

$$k_p = \frac{SAR\ 1.00}{SAR\ 12.00} = 0.0833 = 8.33\%$$

The 8.33% is the cost of capital for preferred stock in this situation.

For a company, the cost of capital for preferred stock is higher than the cost of debt. This difference is the result of interest on debt being tax deductible; the *interest is tax deductible while the preferred dividend payments are not*.

You Try It

What would be the cost of preferred stock for a situation with a market price of SAR 78 and a dividend of SAR 6?

_____

_____

8.1c Cost of Common Stock

Cost of common stock
The return required by investors to buy the shares of ownership in a firm, which is viewed as an *opportunity cost*

The **cost of common stock** is the return required by investors to buy the shares of ownership in a firm, which is viewed as an *opportunity cost*. This cost of common equity is an opportunity cost: it is the return that investors could earn on comparable, alternative uses for their money. This cost applies both to existing shares and to new shares issued by the firm.

Since the cost of common stock is an *opportunity cost*, there is no identifiable expense such as interest that the financial manager may use to determine the cost of these funds. However, the financial manager knows that the *cost of common stock exceeds the cost of debt*.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 324 10/12/2024 15:14

No tax advantage is associated with equity because dividends are paid in after-tax SAR (that is, dividends are not tax deductible), while interest is paid in before-tax SAR (that is, interest is a tax-deductible expense). In addition, common stock represents ownership and, therefore, is a riskier security than a debt obligation. Although the firm is legally obligated to pay interest and meet the terms of the debt agreement, there is no legal obligation for the firm to pay dividends.

To determine the opportunity cost for the cost of capital for common stock, three methods are often used:

1. With equity riskier than debt for the investor, an estimate for the cost of equity could start with the interest rate paid to the debtholders and add a risk premium. This method can be noted as follows:

$$k_e = i + \text{Risk premium}$$

In this notation, k_e is the cost of equity and i is the interest rate for new debt. The risk premium is then added to the interest rate. Although the financial manager knows the interest rate, the amount of the risk premium is unsure. Selecting the rate for the risk premium could be an informed estimate based on various economic, company, and market factors.

2. A second approach to determine the cost of equity is the capital asset pricing model (CAPM). As discussed in Chapter 6, CAPM is used to determine the return on equity as follows:

$$k_e = r_f + (r_m - r_f)\,\beta$$

With this method, the cost of equity depends on the risk-free rate of interest (r_f) plus a risk premium. The risk premium depends on:

- the difference between the return on the market as a whole (r_m) and the risk-free rate; and
- the firm's beta coefficient, which measures the systematic risk associated with the firm.

This required return is the return necessary to convince investors to buy the stock, so it may be viewed as the firm's cost of equity. CAPM is usually viewed as more valid than using the interest rate and adding a risk premium since it more precisely specifies the risk premium associated with investing in the stock.

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2026 - 1448

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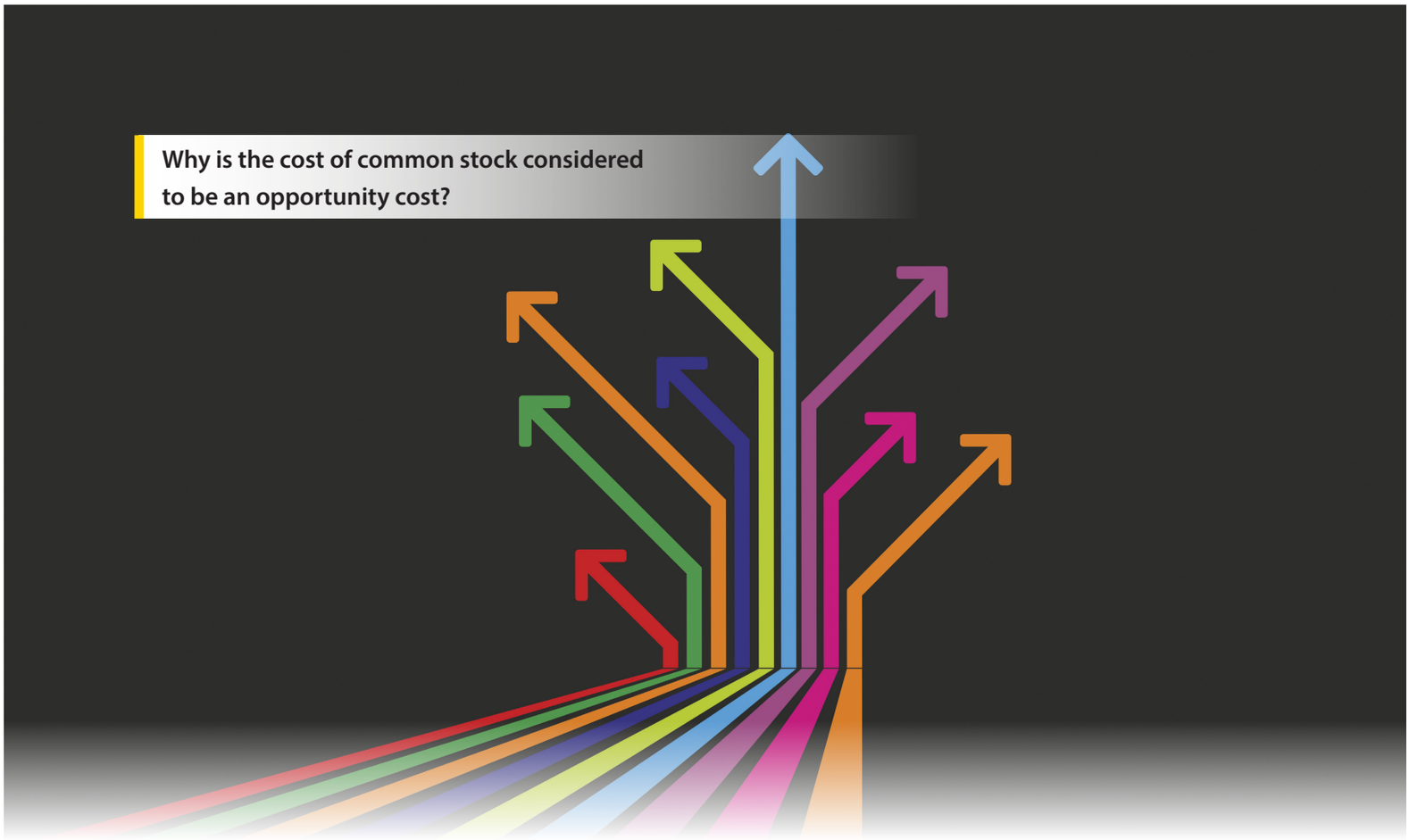

3. A third approach defines the cost of equity based on an investor's expected return. This is the expected dividend yield plus expected growth. D_0 represents the current dividend, while g is the expected growth rate, which is estimated by managers based on recent trends and future expectations. For example, a dividend of SAR 5 with a 10% growth rate would result in an expected dividend of SAR 5.5. With this *dividend growth-rate model*, the return on common stock (*r*) can be expressed as:

$$r = \text{Dividend yield} + \text{Growth rate}$$

$$r = \frac{D_0(1 + g)}{P} + g$$

As with the CAPM approach, the financial manager has to make this model operational. Although the current dividend and the price of the stock are known, estimates must be made for the future capital gains.

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2026 - 1448

Business Finance reprint_1p.indb 326 10/12/2024 15:14

Each of these three approaches have some basic similarities. The interest rate plus risk premium method and the CAPM method are comparable. However, the CAPM specifies more clearly the risk premium in terms of the return on a risk-free security, the return on the market, and the systematic risk associated with the individual firm.

The CAPM method and the expected return method are identical if it is assumed that financial markets are in equilibrium. If that assumption holds, the required return found using the CAPM would also be the investors' expected return determined by using the expected dividend yield plus the expected capital gain. For example, if the expected return exceeded the required return, investors would drive up the price of the stock, causing the expected return to fall. If the expected return were less than the required return, the opposite would occur. Investors would seek to sell the shares, which would drive down their price and increase the yield. These changes will cease when the market is in equilibrium and the required return is equal to the expected return.

The same argument may be expressed in terms of a stock's valuation and its price. If the price of the stock is less than the valuation, investors bid up the price. If the price exceeds the valuation, investors seek to sell, which drives down the price.

The incentive for stock prices to cease changing occurs when the price and the valuation are equal. Thus, if the equity markets are in equilibrium, a stock's price must equal its valuation, and the required return equals the expected return.

If the equity markets are in equilibrium, the stock's price may be substituted for its value in the dividend-growth model ($V = P$):

$$P = \frac{D_0(1 + g)}{k_e - g}$$

By rearranging terms, the required return is:

$$k_e - g = \frac{D_0(1 + g)}{P}$$

$$k_e = \frac{D_0(1 + g)}{P} + g$$

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2026 - 1448

Business Finance reprint_1p.indb 327 10/12/2024 15:14

In this form, the required return is the sum of the dividend yield plus the capital gain. This is identical to the investor's return and may be used as the cost of common equity. This equation expresses the cost of equity under the assumption that the firm does not have to issue new shares. The cost of equity is the cost of retained earnings.

Flotation costs
Expenses associated with selling new stock

If a firm were to issue additional shares, it would receive an amount less than the market price of the stock because of **flotation costs**, which are the expenses associated with selling new stock. To adjust for this expense, the flotation costs (F) must be subtracted from the price of the stock to obtain the net proceeds to the firm. This cost of new shares (k_{ne}) is expressed as:

$$k_{ne} = \frac{D_0(1 + g)}{P - F} + g$$

The greater the flotation costs, the smaller the amount obtained from the sale of each new share will be, resulting in a higher cost of the equity.
Risk partially depends both on the nature of the business (business risk) and the financial decisions of management (financial risk). The relationship between financial risk and the cost of equity is illustrated in Figure 8.3, which relates the cost of equity (k_e) to the firm's use of financial leverage (debt). The same relationship between the cost of debt and the firm's use of financial leverage was shown in Figure 8.2. Both the cost of equity and the cost of debt may be initially stable, but eventually starts to rise as the firm uses more financial leverage and becomes riskier.

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2026 - 1448
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EXAMPLE

A firm's earnings are growing at 7%. The common stock is currently paying SAR 0.935 a share, and this dividend will grow annually at 7% so that the year's dividends will be SAR 1 = SAR 0.935 (1 + 0.07). If the common stock is selling for SAR 25, the firm's cost of common stock is:

$$k_e = \frac{\text{SAR } 0.935\ (1 + 0.07)}{\text{SAR } 25} + 0.07$$

$$k_e = \frac{\text{SAR } 1}{\text{SAR } 25} + 0.07$$

$$= 0.04 + 0.07 = 0.11 = 11\%$$

This tells management that investors currently require an 11% return on the stock investment. That return consists of a 4% dividend yield and the 7% growth. Failure on the part of management to achieve this return for the common stockholders will result in a decline in the price of the common stock.

If the firm has exhausted its retained earnings and must issue new stock, the cost of common stock must rise to cover the flotation costs. If these costs are SAR 1 a share, the firm nets SAR 24 per share, and the cost of equity is:

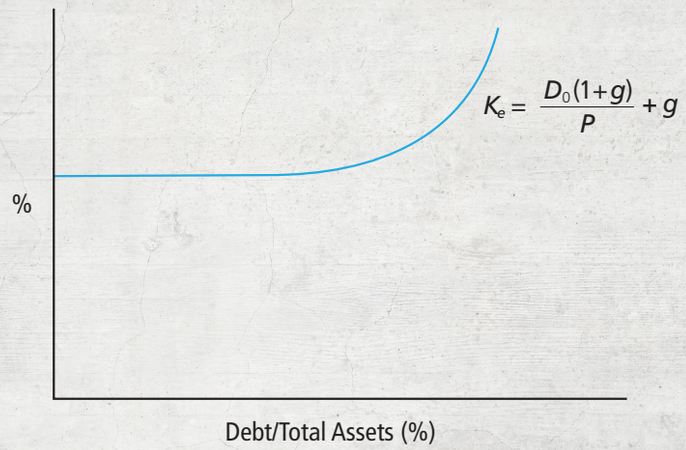
$$k_{ne} = \frac{\text{SAR } 0.935\ (1 + 0.07)}{\text{SAR } 25 - 1} + 0.07$$

$$k_{ne} = \frac{1}{24} + 0.07$$

$$= 0.0417 + 0.07 = 11.17\%$$

The cost of equity is now higher. The firm must earn 11.17% to cover the flotation costs and investors' required return. Flotation costs are a cash outflow that occurs when new securities are issued, which raises the cost of a new issue of securities.

FIGURE 8.3
Cost of Equity



You Try It

Calculate the risk premium using CAPM with these amounts: beta coefficient 1.15, risk-free rate 4%, average market rate 8%.

_____

_____

Exercises

Choose the correct answer.

1. Dividends paid on preferred stock are tax deductible.
True / False

2. The return required by investors viewed as an opportunity cost refers to the:

a. cost of common stock.
b. cost of debt.
c. cost of preferred stock.
d. average weighted cost.

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2026 - 1448

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8.2 A Weighted-Average Cost of Capital

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Key Terms

Capital structure

Weighted-average cost of capital

Nearly every company uses a combination of debt and equity to finance its assets. This mixture of funding sources is the **capital structure**, which is the amount of debt and equity used by a company to finance its business activities.

Capital structure
The amount of debt and equity used by a company to finance its business activities

The capital structure of the company is used to calculate the **weighted-average cost of capital**. This is a weighted average of the costs of debt, preferred stock, and common stock. The weights depend on the proportion of the firm's assets financed by each source. Management should determine the optimal combination of the various sources to minimize the weighted-average cost of funds and maximize the value of the firm. Determining the firm's optimal capital structure requires understanding of how the weighted-average cost of funds is derived.

Weighted-average cost of capital
The mean of the costs of debt, shares in a firm that pay dividends, and common stock

The weighted-average cost of capital is calculated by multiplying the proportions of debt and equity times the capital cost for each of them.

EXAMPLE

If a company with no preferred stock has 30% debt at a cost of 8% and 70% equity at a cost of 10%, the weighted-average cost of capital would be:

= (Percent Debt × Cost of Debt) + (Percent Equity × Cost of Equity)

= (0.30 × 0.08) + (0.70 × 0.10)

= 0.024 + 0.07 = 0.094 = 9.4%

You might think that the weighted-average cost of capital declines as a company takes on more debt. This is true, but only up to a certain portion of debt. As more debt is used, risk increases to create a higher cost of both debt and equity, resulting in a higher weighted-average cost of capital. Every organization attempts to minimize its cost of capital. This will occur when an appropriate combination of debt and equity is used. The exact combination will vary for every company and changes as risk (from increased use of debt) and interest rates change. Managers continually analyze various economic and company factors to arrive at the optimal capital structure.



How might a financial manager try to minimize the cost of capital?

Management has calculated that the current cost of each type of financing is:

Cost of debt	5.20%
Cost of preferred stock	8.96%
Cost of common stock (retained earnings)	11.00%

The proportion (the weights) of the firm's assets financed by each type of financing is:

Debt	40%
Preferred stock	10%
Common stock (retained earnings)	50%

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Business Finance reprint_1p.indb 332 10/12/2024 15:14

Note that the total of the proportions should add up to 100%. To find the cost of capital, multiply the proportion of each component of the optimal capital structure by its respective costs and add the results. For this firm, it yields:

	Cost × Weight = Weighted Cost
Debt	5.20% × 0.40 = 2.080%
Preferred Stock	8.96% × 0.10 = 0.896%
Common Stock	11.00% × 0.50 = 5.500%
	Cost of capital = 8.476%

The process of determining the cost of funds is:

$$k = w_1k_d + w_2k_p + w_3k_e$$

The equation states that the cost of capital (k) is a weighted average in which the costs of debt (k_d), preferred stock (k_p), and equity (k_e) are weighted by the extent to which they are used (that is, w_1, w_2, and w_3, respectively). These weights, along with the cost of each source, then determine the overall cost of funds. In the above illustration, the cost of capital is:

$$k = (0.4)5.20 + (0.1)8.96 + (0.5)11.00 = 0.08476 = 8.476\%$$

For this firm, the weighted-average cost of capital is 8.476%. The firm must earn at least 8.476% on its business activities to justify using these sources of financing.

You Try It

What would be the weighted-average cost of capital in this situation?

debt: 30%	common stock: 60%	preferred stock: 10%
cost of debt: 7%	cost of common stock: 11%	cost of preferred stock: 9.5%

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2026 - 1448

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Exercises

Choose the correct answer.

1. A firm entirely financed by common stock with no debt has a weighted-average cost of capital equal to the cost of equity.

True / False

2. In the weighted-average formula, the least expensive financing source will be the:

a. cost of debt.
b. cost of preferred stock.
c. cost of common stock.
d. risk premium.

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8.3 The Optimal Capital Structure

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Key Term

Optimal capital structure

One of the most important managerial decisions is how much debt and how much equity to use to finance company operations. Some debt (with a lower cost of capital than equity) is beneficial to a company, but too much debt can result in difficulties. While the cost of debt is lower than the cost of equity, as an organization takes on more debt, its risk increases. More debt increases the likelihood of a company missing debt payments and going bankrupt.

What is the best combination of debt and equity financing? The best combination of financing sources is known as the **optimal capital structure**. An appropriate balance between the amount of debt and equity results in a low cost of capital and a maximum market value.

Optimal capital structure

The combination of debt and equity that results in the lowest cost of capital and a maximum market value

The optimal capital structure takes advantage of financial leverage without increasing financial risks too much. In effect, it minimizes the overall cost of finance to the firm. To determine the optimal capital structure, first establish the cost of each financing source and then determine which combination of these sources minimizes the overall cost. This minimum weighted-average cost of capital is used to evaluate investment opportunities. The selection of investments requires knowledge of the firm's cost of capital because an investment must earn a return sufficient to cover the cost of the funds used to acquire the asset. By varying the mix of sources of capital and recalculating the weighted averages, the optimal capital structure is determined.



The previous section illustrated the determination of the firm's weighted cost of capital. In that illustration, the cost of debt was less than the cost of equity because debt is less risky to the investor and the borrower may deduct interest payments to determine taxable income.

If debt costs less than equity, couldn't management reduce the firm's cost of capital by substituting less expensive debt for more costly equity? As is often the answer: "It depends!" As management *initially* substitutes cheaper debt, the cost of capital declines. However, as debt finances a larger proportion of the firm's assets, becoming more financially leveraged, the costs of both debt and equity rise. Management needs to determine the ideal combination of debt and equity financing that minimizes the firm's cost of capital.

This trade-off between debt and equity must be understood by corporate executives. A company should maintain a wise debt level based on its cash flow, interest payments, and ratio of debt to capital. Debt financing can lower the overall cost of capital, which will increase the return on shareowner equity.

The process for determining the optimal capital structure is illustrated in Figure 8.4.

FIGURE 8.4
Determination of the Optimal Capital Structure

Proportion of Debt Financing	Cost of Debt	Cost of Equity	Weighted Cost
0%	4%	10.0%	10.00%
10	4	10.0	09.40
20	4	10.0	08.80
30	4	10.0	08.20
40	4	10.5	07.90
50	5	11.5	08.25
60	6	13.0	08.80
70	8	15.0	10.10
80	10	18.0	11.60
90	15	22.0	15.7

- The first column in the table presents the proportion of debt financing.
- The second and third columns give the after-tax cost of debt and the cost of equity, respectively. To simplify this example, the firm has no preferred stock. The cost of debt is less than the cost of equity, and both are initially constant over a range of debt ratios. The cost of both debt and equity starts to rise as the firm becomes more leveraged.

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2026 - 1448

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- The fourth column presents the weighted-average cost of capital, based on the cost of debt and the cost of equity, weighted by the proportion of assets financed by each of them.

If the firm is entirely financed by equity, the weighted-average cost of capital is the cost of equity. When the firm begins to substitute the less expensive debt financing for equity financing, the weighted-average cost of capital is lower. As the use of debt increases, the weighted-average cost of capital initially declines. However, this decline does not continue indefinitely as the firm substitutes additional cheaper debt. Eventually, both the cost of debt and the cost of equity begin to increase because creditors and investors believe that more financial leverage increases the riskiness of the firm.

At first, small increases in the cost of debt and equity will not be great enough to deter the decline in the weighted cost of capital. However, as the costs continue to increase, the average cost of capital reaches a minimum and then starts to increase. In Figure 8.4, this optimal capital structure occurs at 40% debt (40% debt financing to 60% equity financing). As additional debt is used, the costs of both debt and equity rise sufficiently so that the cost of capital increases.

This determination of the optimal capital structure is also illustrated by Figure 8.5, which plots the cost of debt (k_d), the cost of equity (k_e), and the weighted-average cost of capital (k) from Figure 8.4. As the graph shows, when the use of debt increases, the weighted-average cost of capital initially declines, reaches a minimum at debt of 40% (D1 = 40% and k_1 = 7.9%), and then starts to increase.

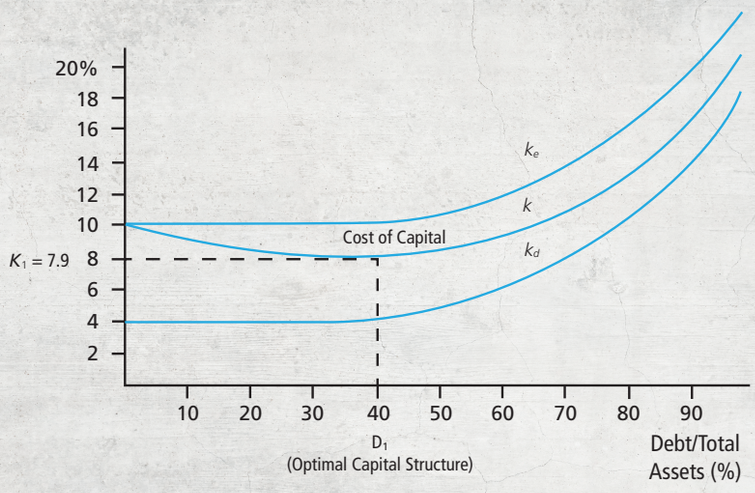

FIGURE 8.5
Cost of Capital

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The optimal capital structure is reached at the minimum point on the weighted-average cost of capital line. The financial manager should plan to use this combination of financing because it involves the lowest cost of funds.

This minimum cost of capital should be used to assess potential investments. As the firm expands with additional equipment and buildings, funding sources must also expand. These additional sources should maintain the firm's optimal capital structure. However, if additional investments increase the riskiness of the firm, then the cost of the additional funds will increase. In that case, the cost of the marginal (additional) funds will exceed the firm's weighted-average cost of capital.

For many companies, the optimal capital structure is a range of debt financing. In the example in Figures 8.4 and 8.5, the weighted-average cost of capital has little variation for debt financing in the 30% to 50% range. This indicates that the positive impact of debt financing in lowering the firm's cost of capital is achieved when 30% of the firm's assets are debt financed. Additional use of debt has little impact on the cost of capital until more than 50% of the assets are debt financed. As a result, the optimal capital structure may be viewed as a range of debt-to-equity financing and not just a specific combination of debt to equity.

Exercises

Choose the correct answer.

1. The optimal capital structure will often result in minimizing the value of the firm.

True / False

2. The optimal capital structure for most companies is in the range of _____ % debt financing.

a. 0
b. 30–50
c. 70–80
d. 100

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8.4 Other Capital Structure Issues

The determination of a company's cost of funds and optimal capital structure influences nearly every aspect of business and financial decisions. In addition to the previous discussion, these factors should be considered:

1. To determine the cost of capital, the financial manager must know all the component costs (debt, preferred stock, and common stock). The estimate for the cost of equity requires information not easily observable, such as the future dividend growth rate, the beta coefficient of the company, as well as other items. Inaccurate estimates will produce an inappropriate measure of the cost of equity.
2. Financial managers need to know how the market will value the shares after the financing decision is made. While this is very difficult to know, a financial manager makes the decision in an expectation of the market treating the shares in a particular way. For example, an extensive use of debt financing can result in unexpected lower stock prices.
3. An optimal capital structure is expected to maximize the value of a firm's stock. That may be valid for publicly held companies, but most businesses are not publicly traded. Even though most privately held firms are small, the determining cost of capital is still important for planning new investments in equipment and other capital projects. The financial managers of small, private firms will usually not know the current value of their firm's equity.

Exercises

Choose the correct answer.

1. Knowing how changes in financing will affect stock prices is usually very uncertain.

   True / False

2. A maximized stock value usually occurs when:

   a. increased debt financing is used.

   b. decreased debt financing is used.

   c. the optimal capital structure is achieved.

   d. tax rates are increasing.

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2026 - 1448

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Chapter 8 Assessment

SUMMARY

All assets are financed using two main sources of capital: debt and equity. If the firm uses debt financing or preferred stock financing, it is financially leveraged. If the firm uses financial leverage, it increases risk, which may increase the cost of the components of the firm's capital structure.

One component of the capital structure—the cost of debt—depends on the interest rate that must be paid, and the tax saving associated with interest payments. Another component—the cost of preferred stock—depends on the dividend that is paid and the net proceeds from the sale of the preferred stock. The third component, the cost of common equity, depends on whether the firm uses retained earnings or issues new shares of stock. New equity is more expensive because of the flotation costs associated with the sale of the new shares.

The cost of common stock is an opportunity cost, as it is the return necessary to convince investors to buy the stock. This cost may be determined by adding an equity premium to the interest rate paid to creditors (bondholders). An alternative approach to determine the cost of common stock is with the capital asset pricing model, which incorporates the return on a risk-free security, the return on the market, and the systematic (market) risk associated with the stock. A third approach uses the expected dividend yield and expected growth to determine the cost of common stock.

Management's task is to determine the best combination of debt and equity financing, that is, to determine the firm's optimal capital structure. That structure takes advantage of financial leverage without overly increasing risk. That combination of debt and equity financing minimizes the overall cost of capital and maximizes the common stock value. Once the optimal capital structure has been determined, the combination of debt and equity should be maintained.

QUESTIONS

1. Describe the benefits of debt financing.

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2. Explain why the cost of capital for preferred stock will usually be lower than the cost of capital for common stock.

3. What actions might be taken to estimate the risk premium for determining the cost of capital for common stock?

4. How does the weighted-average cost of capital change with additional debt?

5. Describe a situation in which a company might decide to avoid additional debt.

6. When a company takes on additional debt, how might that be viewed by stockholders?

7. Why is the optimal capital structure considered a range of debt-to-equity proportions rather than a specific combination of debt to equity?

8. If a company was planning to expand its business activities into an additional region of the world, would you recommend the use of debt or equity financing? Explain your answer.

9. Since inflation can influence the risk associated with cost of capital, describe how higher prices might affect the required rate of return of an investor.

EXERCISES

1. Calculate the after-tax cost of debt based on an interest rate of 6% with a 30% tax rate.

2. What would be the cost of capital for preferred stock with a market price of SAR 45 and a dividend of SAR 2.70?

3. A company plans to issue additional preferred stock. If they plan a preferred cost of capital of 9% and the current market price is SAR 90, what dividend amount will need to be paid?

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Business Finance reprint_1p.indb 342 10/12/2024 15:14

4. Calculate the risk premium using CAPM with these amounts:

beta 1.15 risk-free rate 4% average market rate 8%.

5. Using the dividend growth equation, what would be the cost of equity based on these amounts?

dividend: SAR 2 growth rate: 6% market price: SAR 42

6. Based on these amounts, what would be the weighted-average cost of capital?

Proportions:		
debt: 35%	common stock: 50%	preferred stock: 15%
Costs of capital:		
cost of debt: 7%	cost of common stock: 10%	cost of preferred stock: 8.5%

7. A company has this capital structure:

SAR 120 million debt	cost of debt: 8%
SAR 24 million preferred stock	preferred stock cost of capital: 11%
SAR 96 million common stock	common stock cost of capital: 13%

a. Calculate the capital structure proportions of debt, preferred stock, and common stock.

b. Use the proportions from (a) to calculate the weighted-average cost of capital.

ASSESSMENT QUESTIONS

Choose the correct answer

1. Cost of capital is also considered the required rate of return of the lenders and investors.

True / False

2. Common stockholders require a risk premium in addition to the basic return of bondholders.

True / False

3. Which cost of capital has the benefit of a tax deduction?

a. cost of debt.
c. cost of common stock.
b. cost of preferred stock.
d. average-weighted cost.

4. The cost of preferred stock is determined by dividing the dividend by the:

a. growth rate.
c. beta coefficient.
b. tax rate.
d. market price.

5. Which of these methods is not commonly used to determine the cost of equity?

a. Capital asset pricing model.
c. Current tax rate.
b. Adding a risk premium.
d. Dividend growth rate model.

6. Capital structure is the amount of debt and equity used by a company to finance its business activities.

True / False

7. As a company's capital structure goes from no debt to some debt, the weighted-average cost of capital will:

a. remain constant.
c. decline.
b. rise.
d. be uncertain.

8. The optimal capital structure is the appropriate blend of debt and equity financing.

True / False.

9. At the optimal capital structure:

a. the value of the company is minimized.
c. the weighted-average cost of capital is equal to the cost of debt.
b. the value of the company is maximized.
d. the amount paid in taxes is rising.

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10. Determining the cost of equity is easier than determining the cost of debt.

True / False.

KEY TERMS

Match the terms listed with their definitions. Write the letters of the correct definitions.

Term	Your choice	Definition
1. Capital structure		**a.** The combination of debt and equity that results in the lowest cost of capital and maximum market value
2. Cost of capital		**b.** The required return company owners expect to earn based on the money they have invested in the company
3. Cost of common stock		**c.** The relationship between the dividend from dividend-paying shares in a firm and the market price
4. Cost of debt		**d.** The mean of the costs of debt, shares in a firm that pay dividends, and common stock
5. Cost of equity		**e.** Expenses associated with selling new stock
6. Cost of preferred stock		**f.** The return required by investors to buy the shares of ownership in a firm, which is viewed as an *opportunity cost*
7. Flotation costs		**g.** The rate of return required by creditors
8. Optimal capital structure		**h.** The amount of debt and equity used by a company to finance its business activities
9. Weighted-average cost of capital		**i.** Also called *required rate of return*, this is the rate required by lenders and investors who are letting the company use their money

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 345 10/12/2024 15:14

KEY FORMULAS

Cost of debt	$k_d = i(1 - t)$
Cost of preferred stock	$k_p = \frac{D_p}{P_p}$
Cost of common stock—risk premium	$k_e = i + \text{Risk premium}$
Cost of common stock—CAPM	$k_e = r_f + (r_m - r_f)ß$
Cost of common stock —dividend growth model	$k_e = \frac{D_0(1 + g)}{P} + g$
Cost of new shares	$k_{ne} = \frac{D_0(1 + g)}{P - F} + g$
Weighted-average cost of capital	$k = w_1k_d + w_2k_p + w_3k_e$

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 346 10/12/2024 15:14

MINI CASE 8.1

Cost of Capital for Debt

Borrowing allows a company to use the money of others with a lower cost of capital because of the lower risk for lenders than the expected return of stockholders. In addition, interest payments on debt are tax deductible as a business expense. Despite these benefits, debt increases the risk for stockholders since creditors are entitled to interest payments and repayment before any dividends are paid.

As a telecommunications company plans to expand into new regional markets, the managers are trying to decide whether to use debt or issue additional stock. They realize that in addition to the tax benefits of debt, the following must also be considered:

- *The current interest rate for borrowing for a telecommunications company.*
- *The length of the borrowing term. Short-term debt will usually have a lower interest rate than long-term debt.*
- *The riskiness of the firm should be evaluated based on the business risk for a telecommunications company and the current debt level of the company.*

Task

1. What factors should the company consider before taking on additional debt?

2. How might the additional debt affect the cost of capital for the company?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 347 10/12/2024 15:14

MINI CASE 8.2

Cost of Capital for Common Stock

Malak plans to buy shares of common stock in a retailing company. Evaluating the opportunity cost for an expected return of this investment, she will also consider other possible investments. The required return for an investor of common stock might be determined using one of three methods:

1. *This approach starts with the interest rate paid on debt and adds a risk premium, which is estimated based on uncertainty related to economic, company, and market factors.*
2. *A second approach is the capital asset pricing model (CAPM) with the risk premium influenced by the firm's beta coefficient, which measures the systematic (undiversifiable) risk.*
3. *A third approach takes in to account the expected dividend yield plus expected growth.*

Task

1. Why is the required return for a common stock investment viewed as an opportunity cost?

2. Which of the three methods would provide Malak with the best approach to determine her required rate of return for the potential retailing company stock investment? Explain your choice.

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 348 10/12/2024 15:14

MINI CASE 8.3

Weighted Average Cost of Capital

Layla is the financial manager for a construction company. Current plans include determining the company's cost of capital for upcoming building projects. This process involves calculating a cost of equity and the weighted average cost of capital for the company. Layla needs to take actions using the following data provided by the company's analysts.

Task

1. Using the Dividend-Growth Model formula, calculate the k_e based on these amounts:

Dividend	SAR 5
Growth rate	4%
Current stock price	SAR 80

2. Calculate the weighted-average cost of capital based on the k_e from (a) along with a k_d of 7% and these capital structure proportions:

Debt	30%
Equity	70%

3. What additional actions might Layla consider in the future to reduce the cost of capital for the company?

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 349 10/12/2024 15:14

CASE STUDY: COST OF CAPITAL FOR EXPANDED GLOBAL BUSINESS ACTIVITIES

Companies are continually planning for new equipment, new products, new markets, and expansion strategies. These actions require funding, either through debt or equity. Managers must decide how to best finance new and expanded business activities. At the foundation of these decisions is a company's cost of capital.

A food and beverage company developed a planning format for identifying its cost of capital. This process involves two steps. Step one, a framework involves consideration of quantitative and qualitative factors in relation to: (1) the company situation, (2) the country/market situation, and (3) the proposed business project. This is a summary of the factors the company studies when selecting a cost of capital:

Cost of Capital Factors	(1) Current Company Situation	(2) Country (Market) situation	(3) Proposed Project Situation
Quantitive Factors	• bond yield • stock yield • debt level	• inflation rate • bond yields • Gross Domestic Product per capita income growth	• start-up costs • certainty of cash flows • funding availability and rates
Qualitative Factors	• past success • managers • current markets	• infrastructure • government regulations • geographic factors	• facility, technology availability • market potential for product

In step two, in addition to the quantitative and qualitative factors, the company uses these guidelines to determine a specific cost of capital when planning a project or product in an existing or new market:

Cost of Capital Analysis	Home Country of Company	New Market *industrialized country*	New Market *developing economy*
Existing Project (or product)	Base rate	Base plus 1–3%	Base plus 2–5%
New Project (or product)	Base plus 1–3%	Base plus 2–5%	Base plus 4–6%

When using this table, the company starts with a base rate – its current cost of capital. This amount is adjusted for the type of project (existing or new) and the market setting of the project (home country, industrialized country, or developing economy).

The food and beverage company is planning to expand beyond its home country of Saudi Arabia. Various projects under review include production in another country and plans to sell its products outside its home country.

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2026 - 1448

Business Finance reprint_1p.indb 350 10/12/2024 15:14

Study Questions

1. For the planned business expansion, would you recommend that the Saudi company develop a new product for a new market in: (a) an industrialized country, or (b) a country with a developing economy? Explain your choice.

2. Explain how one or more quantitative and qualitative factors might affect the cost of capital for the food and beverage company.

3. Starting with a base cost of capital in Saudi Arabia of 4% and using the guidelines in the "Cost of Capital Analysis" table, choose a cost of capital for the project you recommended in Item 1 (above). Explain the factors that influenced your decision for the cost of capital you selected.

Online Activity

Research online methods used by Saudi companies to determine the cost of capital for financing new business activities. Describe the process used and the current cost of capital for various companies.

Business Finance reprint_1p.indb 351 10/12/2024 15:14

Glossary

accounts receivable
amounts of money that are due to be paid to a seller from a buyer

acquisition
the purchase of a company by another company

activity ratios
an indicator of how well a company is using its resources to generate revenues and cash

annuity
a series of equal, annual payments with a constant rate of return

articles of association/articles of incorporation
bylaws, or procedures, for the operation of a joint stock company

asset-backed securities
bonds issued to finance activities that generate income

assets
items or property owned by a firm, household, or government and valued in monetary terms

balance sheet
a financial statement that enumerates (as of a point in time) what an economic unit owns and owes and its net worth

banker's acceptances
short-term promissory notes for payment guaranteed by a bank

banknote
a form of paper money in which the government of issue's central bank promises to pay the bearer the sum of its stated value

beta coefficient
a measure of systematic risk; an index of the risk of a stock's return relative to changes in the return on the market

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 352 10/12/2024 15:14

bid and ask prices
prices quoted by market makers at which they are willing to buy and sell securities

board of directors
body elected by and responsible to stockholders to set policy and hire management to run a corporation

bonds
a debt obligation issued by entities such as governments and businesses

call feature
the right of a debtor to retire a bond prior to maturity

capital asset pricing model (CAPM)
a method of calculating the relationship between systematic risk and the expected return on assets, particularly stock

capital gain
the increase in the value of the asset, based on the asset's original price

capital structure
the amount of debt and equity used by a company to finance its business activities

cash dividends
distribution from earnings paid into the bank accounts of shareholders

commercial paper
unsecured short-term promissory note issued by the most creditworthy corporations

common stock
security representing ownership in a corporation; those who own these securities have a final claim on the firm's assets and earnings after the firm has met its obligations to creditors and preferred stockholders

compounding
the process by which earnings are based on the original amount as well as previous amounts earned

controllable risks
unexpected possibilities that can be avoided or whose negative effects can be reduced by careful actions

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 353 10/12/2024 15:14

convertible bonds
a form of loan that may be converted into (exchanged for) stock at the option of the person who has taken it out

correlation
the relationship between two or more financial variables over time

correspondent bank
a financial institution which performs services for one or more other financial institutions and often serves as a point of liaison between domestic and international financial institutions

cost of capital
also called required rate of return, this is the rate required by lenders and investors who are letting the company use their money

cost of common stock
the return required by investors to buy the shares of ownership in a firm, which is viewed as an *opportunity cost*

cost of debt
the rate of return required by creditors

cost of equity
the required return company owners expect to earn based on the money they have invested in the company

cost of preferred stock
the relationship between the dividend from dividend-paying shares in a firm and the market price

coupon
the interest rate received by the bondholder

coverage ratios
the ability of the firm to service interest or dividend payments

credit ratings
classification schemes designed to indicate the risks associated with a particular debt instrument

cross-sectional analysis
an evaluation of data about several firms in the same industry at a point in time

current assets
short-term assets that are expected to be converted into cash during the fiscal year

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2026 - 1448
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current liability
a debt that must be paid during the fiscal year

current ratio
ratio of a firm's current assets to its current liabilities; measure of liquidity

current yield/yield to maturity
the rate of return on a bond investment

date of record
the day on which an investor must own stock in order to receive the dividend payment

day order
order to buy or sell at a specified price that is canceled at the end of the day if it is not executed

debentures
unsecured bonds supported by the general credit of the company

debt ratio
the total amount of money owed divided by the total assets; the proportion of assets financed by money owed; a measure of financial leverage

debt/net worth ratio
the ratio of money owed to equity; money owed divided by equity

default
when the borrower fails to meet the terms specified in the indenture of a debt issue

depository receipts (DRs)
receipts issued for foreign securities held by a trustee

depreciation
the process of allocating the cost of the fixed assets over a period of time

derivatives
contracts between two parties that take their price from the value of an underlying asset, such as stock, group of stocks (an index), or other measure

dilution
reduction in earnings per share as the result of the issuing of additional shares

discounting
the process of determining the present value of a payment that is to be received in the future

diversifiable risk (unsystematic risk)
uncertainties associated with individual events that affect a particular asset; firm-specific uncertainty that is reduced by diversifying investment portfolios

dividends
a period payment to a stock shareholder in cash or other shares of stock

economic risk
uncertainty with a potential financial impact

efficient market hypothesis (EMH)
the theory that when new information comes into the market, it is immediately reflected in stock prices and, as a result, all stock prices are fair values

equity
the sum total of a firm's assets; a firm's book value or net worth

Eurobonds
bonds sold in a foreign country but denominated in the currency of the issuing firm

excess reserves
the amount of funds a bank holds in addition to the amount of funds it is required to hold

exchange-traded funds
like mutual funds, but passive and traded like stocks

expected return
the financial or other incentive for accepting risk by investing

ex dividend
referring to stock purchases which do not entitle the buyer to the next dividend

financial leverage
use of borrowed funds in return for agreeing to pay a fixed return; use of debt financing

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Ministry of Education
2026 - 1448
Business Finance reprint_1p.indb 356 10/12/2024 15:14

financial transaction costs
costs involved in the buying or selling of financial products

fixed asset turnover
an efficiency ratio that indicates how well or efficiently a business uses objects that have been purchased for long-term use to generate sales

flotation costs
expenses associated with selling new stock

future value
the amount by which savings will increase based on a certain rate and over a certain time period

futures contract
an agreement to buy or sell a commodity contract or security at some point in the months or years to come

good-till-canceled order
order to buy or sell at a specified price (limit price) that remains in effect until it is executed by the broker or canceled by the investor

good-till-date order
an order to buy or sell that is active until a specific date

gross profit margin
ratio of revenues minus cost of goods sold to sales; percentage earnings on sales before considering operating expenses, interest, and taxes

high-yield securities (junk bonds)
poor-quality debt with high returns and a high probability of default

horizontal analysis
a method for analyzing accounting data by comparing current financial data to previous reporting periods

human risks
uncertainty resulting from the actions of individuals, groups, or organizations

income statement
financial statement that summarizes revenues and expenses for a period of time to determine profit or loss

indenture
a legal document specifying the terms of a debt issue

insider trading
a situation where someone who works for a firm, or has access to information about it, trades the firm's securities because they have confidential or non-public information about the firm

inventory
what a firm has available to sell

inventory turnover
the speed with which the things that a firm has available to sell are sold

leverage ratios
An indicator of the extent to which a firm's operations are funded by debt.

liabilities
what an economic unit owes expressed in monetary terms

limit order
a direction given to a broker to buy or sell a security at a specific price

liquidity
the ease of converting an asset into cash without loss

liquidity ratios
a company's ability to pay off current debt obligations without securing external capital

long position
the purchase of securities in anticipation of a price increase

long-term assets
things a firm owns that it expects to hold for more than a year, such as plant and equipment

long-term liability
debt that becomes due to be repaid after one year

m-1
the amount of money in circulation in the form of coins, currency, and demand deposits

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Ministry of Education
2026 - 1448
Business Finance reprint_1p.indb 358 10/12/2024 15:14

m-2
the amount of money in circulation in the form of coins, currency, demand deposits, savings accounts, and small certificates of deposit

margin
an investor's equity in a security position

margin requirement
the percentage of a purchase price that must be paid up front when buying securities

market capitalization-weighted index
the total value of all a firm's shares listed on the market on a day divided by the total value of all the shares the firm previously listed on the index

market maker
a dealer who engages in the business of buying and selling securities for their own account

market order
instructions to buy or sell a security at the best current price

market return
the amount of money that a firm gets back from the overall value of its equities

maturity date
the day by which a debt must be repaid

money
Anything that is generally accepted as a means of payment

money market mutual fund
an investment company that invests solely in short-term money market instruments

money supply
the total amount of currency in circulation

mortgage bonds
a form of loan that is secured by a claim on real estate

mutual funds
an assortment of securities developed by investment firms and offered to investors

national debt
the total outstanding obligations of a country

natural risks
uncertainty resulting from natural events or phenomena

non-annual compounding
Payment of interest more frequently than once a year

opportunity cost
what a person gives up by making a choice

optimal capital structure
the combination of debt and equity that results in the lowest cost of capital and maximum market value

overpriced
an item that costs more than its worth

pay date/distribution date
the day on which a dividend is paid to stockholders

payout ratio
the ratio of dividends to earnings per share

portfolio risk
uncertainty associated with making a range of investments which involve both systematic and unsystematic risk

preemptive rights
the right of current stockholders to maintain their proportionate ownership in the company

preferred stock
the shares in a company that are owned by people who have the right to receive part of the company's profits before the holders of common stock

present value
the current value of a future sum of money given a specified rate of return

principal
the amount that a borrower owes

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 360 10/12/2024 15:14

profitability ratio
a firm's ability to generate earnings relative to its revenue, operating costs, assets, or equity over time

prospectus
a document that provides information about an investment such as a stock or mutual fund

pure risk
uncertainty with no opportunity for financial gain, only a potential loss

quick ratio (acid test)
current assets excluding inventory divided by current liabilities; an indicator of liquidity

ratio analysis
The process of evaluating elements of a financial report as they relate to other pieces of information in the same report

receivables turnover
the speed with which a firm is able to collect money that is owed

repurchase agreement (repo)
the sale of a short-term security in which the seller agrees to buy back the security at a specified price at a specified date

required reserves
funds that banks must hold against their deposit liabilities

required return
the amount that investors need to get back in order for them to be induced to make an investment

residual claim
a claim to a share of earnings after a debt has been settled

retained earnings
accumulated profit after dividends

retiring debt
when a borrower pays back the money they owed in full

return
what is earned on an investment; the sum of income and capital gains generated by an investment

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Ministry of Education
2026 - 1448

Business Finance reprint_1p.indb 361 10/12/2024 15:14

return on total assets
ratio of a firm's earnings to the total amount that it owns; a percentage earned on assets

risk
the degree of uncertainty about whether an anticipated return will be achieved

risk management
the process of systematically identifying potential uncertainties and making plans to reduce the impact of those uncertainties

secondary reserves
short-term securities held by banks to increase their liquidity

self-insurance
setting aside money to cover a potential financial loss

share dividends
stock that is given to stockholders as a return on their investment, often in place of cash

shareholders' equity
a firm's net worth; the amount of money that individuals have invested in the firm; the sum of stock, paid-in capital, and retained earnings

short position
the sale of borrowed securities in anticipation of a price decrease

speculative risk
a situation with the possibility of either financial loss or gain

spread
the difference between the bid and ask prices

standard deviation
a measure of dispersion around an average value; a measure of risk

statement of cash flows
a financial statement summarizing the amount of money that is coming into and going out of a firm

stock split
a recapitalization achieved by changing the number of shares outstanding

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Ministry of Education
2026 - 1448
Business Finance reprint_1p.indb 362 10/12/2024 15:14

stocks
the capital raised by a firm through the issue of shares , which also gives their holders ownership of the company

sukuk
a Shariah-compliant bond-like instrument used in Islamic finance representing a direct asset ownership interest

term structure of interest rates
the relationship between yields and the time to maturity for debt with a given level of risk

time series analysis
evaluation of a firm's financial performance over a period of time

time value of money
increases in an amount as a result of its earnings over time

times-interest-earned
ratio of operating income (EBIT) to interest expense; measure of the safety of a debt instrument

total asset turnover
ratio of sales to everything that a firm owns; a measure of the amount of assets that a firm has which is required to generate sales

tradable rights
the entitlement to subscribe to new shares listed during a capital increase, such as the sale of new stock shares

treasury shares
stock held by the company for use as employee stock

uncontrollable risks
uncertainties that cannot be influenced by human action

underpriced
an item that costs less than its worth

undiversifiable risk (systematic risk)
uncertainties associated with fluctuations in securities prices and other non firm-specific factors: market uncertainty that is not reduced through the construction of diversified portfolios

valuation
process of determining what an asset is currently worth

variable interest rate bonds
long-term debt instruments whose interest payments vary with changes in short-term interest rates or the Consumer Price Index

vertical analysis
a method for analyzing accounting data by reading down a single column in a financial statement and determining how each individual line items in the statement relates to another base figure in the report

weighted-average cost of capital
the mean of the costs of debt, shares in a firm that pay dividends, and common stock

yield
the return on a stock expressed as dividend per share divided by the current share price

yield curve
a graph relating interest rates and the term to maturity

zero coupon bonds
a form of loan that is initially sold at a discount and on which interest accrues and is paid at maturity

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