

TRƯỜNG ĐẠI HỌC DUY TÂN

Khoa Đào Tạo Quốc Tế



ĐỀ CƯƠNG ÔN TẬP TỐT NGHIỆP

KHOÁ K18 (2012-2015)

NGÀNH TÀI CHÍNH NGÂN HÀNG CHUẨN PSU

TRÌNH ĐỘ CAO ĐẲNG

Lưu hành nội bộ

Đà Nẵng, tháng 05 năm 2015

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MÔN KIẾN THỨC CƠ SỞ NGÀNH (1 TÍN CHỈ)

- **DISCRIPTION**

Major contains basic knowkedge of 2 subjects: Introduction to money, banking and financial market 1 (PSU FIN 271) and Fundamentals of financial management 1 (PSU FIN 301).

- **OBJECTIVES**

○ Introduction to money, banking and financial market is aimed to help students understand and apply some theories about the relationship between Six Parts of Financial System and to compare the Parts of Financial System of Vietnam. Also, they are trained the concepts and roles of Financial Instrument, Financial Institutions and Financial Markets.

○ Fundamentals of financial management focuses on the basic concepts of financial management to maximize shareholders wealth. Analyzing fianancial statements in order to understand the financial situation of a corporations to make decisions. To understand the time value of money which determines risk and rate of return and valuation of bonds, and stocks. Establish the capital structure and capital bugeting and estimate projects. The course has nine lessons to focus on three issues: Financial Analysis, Valuation of bonds and stocks, Capital Budgeting.

- **TEST FORM:** Multiple choice + Exercises

- **TIME:** 90 minutes

- **LANGUAGE:** English

- **CONTENTS:**

PART I: INTRODUCTION TO MONEY, BANKING AND FINANCIAL MARKETS 1
(PSU-FIN 271)

**LESSON 1: AN INTRODUCTION TO MONEY AND FINANCIAL
SYSTEM**

1.1 THE SIX PARTS OF THE FINANCIAL SYSTEM

We use the first part of the system, money, to pay for our purchases and to store our wealth. We use the second part, financial instruments, to transfer resources from savers to investors and to transfer risk to those who are best equipped to bear it. Stocks, mortgages, and insurance policies are examples of financial instruments. The third part of our financial system, financial markets, allows us to buy and sell financial instruments quickly and cheaply. The New York Stock Exchange is an example of a financial market. Financial institutions, the fourth part of the financial system, provide a myriad of services, including access to the financial markets and collection of information about prospective borrowers to ensure they are creditworthy. Banks, securities firms, and insurance companies are examples of financial institutions. Government regulatory agencies form the fifth part of the financial system. They are responsible for making sure that the elements of the financial system—including its instruments, markets, and institutions—operate in a safe and reliable manner. Finally, central banks, the sixth part of the system, monitor and stabilize the economy. The Federal Reserve System is the central bank of the United States.

1.1.1. Money is used to pay for purchases and to store wealth.

1.1.2. Financial instruments are used to transfer resources and risk.

1.1.3. Financial markets allow people to buy and sell financial instruments.

1.1.4. Financial institutions provide access to the financial markets, collect information, and provide a variety of other services.

1.1.5. Government regulatory agencies aim to make the financial system operate safely and reliably.

1.1.6. Central banks stabilize the economy.

1.2 THE FIVE CORE PRINCIPLES OF MONEY AND BANKING: are useful in understanding all six parts of the financial system.

Five core principles will inform our analysis of the financial system and its interaction with the real economy. Once you have grasped these principles, you will have a better understanding not only of what is happening in the financial world today but of changes that will undoubtedly occur in the future. The five principles are based on Time, Risk, Information, Markets, and Stability.

- 1.2.1 Core Principle 1: Time has value.**
- 1.2.2 Core Principle 2: Risk requires compensation.**
- 1.2.3 Core Principle 3: Information is the basis for decisions.**
- 1.2.4 Core Principle 4: Markets determine prices and allocate resources.**
- 1.2.5 Core Principle 5: Stability improves welfare.**

LESSON 2: MONEY AND THE PAYMENTS SYSTEM

2.1 MONEY AND HOW WE USE IT

Money, in the sense we are talking about, has three characteristics. It is (1) a means of payment, (2) a unit of account, and (3) a store of value. The first of these characteristics is the most important. Anything that is used as a means of payment must be a store of value and thus is very likely to become a unit of account. Let’s see why this is so.

The Functions of Money

1. Means of payment: Used in exchange for goods and services.
2. Unit of account: Used to quote prices.
3. Store of value: Used to move purchasing power into the future.

2.1.1. Means of Payment:

The primary use of money is as a means of payment. Most people insist on payment in money at the time a good or service is supplied because the alternatives just don’t work very well.

2.1.2. Unit of Account:

Just as we measure length using feet and inches, we measure value using dollars and cents. Money is the unit of account that we use to quote prices and record debts. We could also refer to it as a standard of value.

2.1.3. Store of Value

For money to function as a means of payment, it has to be a store of value, too. That is, if we are going to use money to pay for goods and services, then it must retain its worth from day to day. Of course, money is not the only store of value. We hold our wealth in lots of other forms—stocks, bonds, houses, even cars. Many of these are actually preferable to money as stores of value. Some, like bonds, pay higher interest rates than money. Others, like stocks, offer the potential for appreciation in nominal value, which money does not. Still others, like houses, deliver other services over time. Yet we all hold money because money is liquid.

Liquidity is a measure of the ease with which an asset can be turned into a means of payment, namely money. For example, a bond is much more liquid than a house because it is so much easier and cheaper to sell. The more costly it is to convert an asset into money, the less liquid it is. Because constantly transforming assets into money every time we wished to make a purchase would be extremely costly, we keep some money around.

2.2 THE PAYMENTS SYSTEM

Money makes the payments system work. The payments system is the web of arrangements that allows people to exchange goods and services. Money is the heart of the payments system. There are three broad categories of payments, all of which use money at some stage.

The possible methods of payment are:

2.2.1. Commodity Monies

The first means of payment were things with intrinsic value. The first means of payment were things with intrinsic value.

2.2.2. Fiat Monies

Today, though, we use *paper money*—high-quality paper, nicely engraved, with lots of special security features. This type of currency is called **fiat money**, because its value comes from government decree, or fiat. Some countries print notes that are durable and attractive, bearing famous works of art in multiple colors

2.2.3. Checks

Checks are another way of paying for things. Unlike currency, the checks you use to pay your rent and electric bill are not legal tender. In fact, they aren't money at all. A

check is just an instruction to the bank to take funds from your account and transfer them to the person or firm whose name you have written in the “Pay to the order of” line

2.2.4. Electronic Payment

The fourth and final method of payment is electronic. We are all familiar with credit cards and debit cards. A less well known form of payment is electronic funds transfers.

What is the difference between debit cards and credit cards? A **debit card** works the same way as a check in that it provides the bank with instructions to transfer funds from the cardholder’s account directly to a merchant’s account. There is usually a charge for this; the processor of the payment takes a fee based on the size of the transaction.

A **credit card** is a promise by a bank to lend the cardholder money with which store’s bank account receives payment immediately, but the money that is used for payment does not belong to the buyer. Instead, the bank that issued the credit card makes the payment, creating a loan the cardholder must repay. For this reason, credit cards do not represent money; rather, they represent access to someone else’s money to make purchases.

Electronic funds transfers are movements of funds directly from one account to another. These transactions are used extensively by banks and are becoming increasingly popular for individuals as well. For individuals, the most common form is the automated clearinghouse transaction (ACH), which is generally used for recurring payments such as paychecks and utility bills.

Banks use electronic transfers to handle transactions among themselves. The most common method is to send money through a system maintained by the Federal Reserve, called Fedwire.

Retail businesses, together with their banks, are experimenting with a variety of new methods of electronic payment. One is the **stored-value card**, which looks like a credit or debit card except that it doesn’t bear your name. To use one, you go to the bank or ATM machine and put the card into an electronic device that transfers funds from your checking account to your card. Then you take the card to a merchant who has a reader that is capable of deducting funds from the card and depositing them directly into the store’s account. The stuff on the card is in fact money, and the system can be set up so that if you lose your card, its current value can be canceled.

E-money is another new method of payment. It can be used to pay for purchases on the Internet. You open an account by transferring funds to the issuer of the e-money. Then, when you are shopping online, you instruct the issuer to send your e-money to the merchant. E-money is really a form of private money.

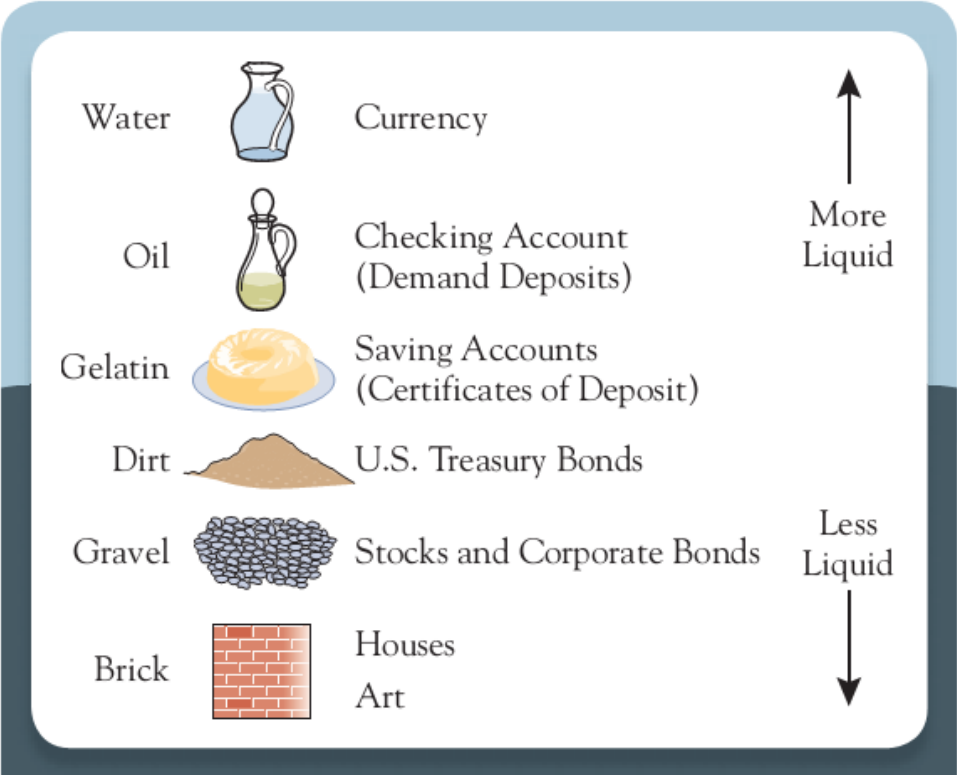
2.2.5. The Future of Money

- The future of the three functions of money:
 - Means of payment: disappearing due to ease of electronic transactions.
 - Unit of account: likely to remain.
 - Will always be needed to quote values and prices because it is efficient.
 - But, will we move to one global unit of account?
 - Store of value: disappearing due to liquidity of many financial instruments.

2.3 MEASURING MONEY

- The monetary aggregates: **M1 and M2**.
- Liquidity:

Figure 2.2 The Liquidity Spectrum



Liquidity is the ease with which you can turn an asset into a means of payment without loss of value.

Table 2.1 The Monetary Aggregates

Monetary Aggregates	Value as of February 2007 (US\$ billions)
M1 = Currency in the hands of the public	749.9
+ Traveler's Checks	6.7
+ Demand Deposits	300.0
+ Other Checkable Deposits	302.9
Total M1	1359.5
M2 = M1	
+ Small-denomination time deposits	1179.4
+ Savings Deposits and Money Market Deposit Accounts	3746.6
+ Retail Money Market Mutual Fund Shares	826.7
Total M2	7112.2

SOURCE: Board of Governors of the Federal Reserve.

LESSON 3: FINANCIAL INSTRUMENT, FINANCIAL MARKETS, AND FINANCIAL INSTITUTIONS

3.1 FINANCIAL INSTRUMENTS

The written legal obligation of one party to transfer something of value, usually money, to another party at some future date, under certain conditions.

3.1.1 Functions of Financial Instruments

Three functions:

Financial instruments act as a means of payment (like money). Employees take stock options as payment for working.

Financial instruments act as stores of value (like money). Financial instruments generate increases in wealth that are larger than from holding money. Financial instruments can be used to transfer purchasing power into the future.

Financial instruments allow for the transfer of risk (unlike money). Futures and insurance contracts allows one person to transfer risk to another.

3.1.2. Classification of financial instruments

Underlying versus Derivative Instruments

Two fundamental classes of financial instruments:

- *Underlying instruments* are used by savers/lenders to transfer resources directly to investors/borrowers. This improves the efficient allocation of resources.

Examples: stocks and bonds.

- *Derivative instruments* are those where their value and payoffs are “derived” from the behavior of the underlying instruments. The primary use is to shift risk among investors.

Examples are futures and options.

Examples of Financial Instruments

- *Primarily used as stores of value:*

1. *Bank loans*
2. *Bonds*
3. *Home mortgages*
4. *Stocks*

- *Primarily used to Transfer Risk:*

1. Insurance contracts.
2. Futures contracts.
3. Options

3.2 FINANCIAL MARKETS

- Financial markets are places where financial instruments are bought and sold.
- These markets are the economy’s central nervous system.
- These markets enable both firms and individuals to find financing for their activities.
- These markets promote economic efficiency:
 - They ensure resources are available to those who put them to their best use.
 - They keep transactions costs low.

3.2.1. The Role of Financial Markets

1. *Liquidity:*
2. *Information:*
3. *Risk sharing:*

3.2.2. The Structure of Financial Markets

3.2.2.1. Primary versus Secondary Markets

- **A primary market** is one in which a borrower obtains funds from a lender by selling newly issued securities.
 - Occurs out of the public views.
 - An investment bank determines the price, purchases the securities, and resells to clients.

This is called underwriting and is usually very profitable

- **Secondary financial markets** are those where people can buy and sell existing securities.
 - Buying a share of IBM stock is not purchased from the company, but from another investor in a secondary market.

3.2.2.2. Centralized Exchanges, Over-the-Counter Markets (OTC's), and Electronic Communication Networks (ECN's)

- Centralized exchanges - buyers and sellers meet in a central, physical location.
- Over-the-counter markets (OTC's) - decentralized markets where dealers stand ready to buy and sell securities electronically.
- Electronic communication networks (ECN's) - electronic system bringing buyers and sellers together without the use of a broker or dealer.

3.2.2.3. Debt and Equity versus Derivative Markets

- Equity markets are the markets for stocks.
- Derivative markets are the markets where investors trade instruments like futures and options.

3.3 FINANCIAL INSTITUTIONS

3.3.1. The Role of Financial Institutions

- reduce transaction costs
- reduce the information costs
- give savers ready access to their funds

3.3.2. The Structure of Financial Institutions

Depository institutions take deposits and make loans; they are what most people think of as banks, whether they are commercial banks, saving banks, credit unions.

and Non-depository institutions include insurance companies, securities firms, mutual fund companies, hedge funds, finance companies, and pension funds. Each of

these serves a very different function from a bank. Some screen and monitor borrowers; other transfer and reduce risk. Still others are brokers.

1. Depository institutions take deposits and make loans.
2. Insurance companies accept premiums, which they invest, in return for promising compensation to policy holders under certain events.
3. Pension funds invest individual and company contributions in stocks, bonds, and real estate in order to provide payments to retired workers.
4. Securities firms include brokers, investment banks, underwriters, and mutual fund companies. Brokers and investment banks issue stocks and bonds to corporate customers, trade them, and advise customers. Mutual-fund companies pool the resources of individuals and companies and invest them in portfolios. Hedge funds do the same for small groups of wealthy investors.
5. Finance companies raise funds directly in the financial markets in order to make loans to individuals and firms. Finance companies tend to specialize in particular types of loans, such as mortgage, automobile, or business equipment.

LESSON 4: THE ECONOMY OF FINANCIAL INTERMEDIATION

4.1 THE ROLE OF FINANCIAL INTERMEDIARIES

In their role as financial intermediaries, financial institutions perform five functions:

- 4.1.2 Pooling the resources of small savers,
- 4.1.3 Providing safekeeping and accounting services, as well as access to payments system,
- 4.1.4 Supplying liquidity by converting savers' balances directly into a means of payment whenever needed,
- 4.1.5 Providing ways to diversify risk, and
- 4.1.6 Collecting and processing information in ways that reduce information costs.

4.2 INFORMATION ASYMMETRIES AND INFORMATION COSTS

4.2.1. Adverse selection: Before a transaction, the least creditworthy borrowers are the ones most likely to apply for funds. This problem is known as adverse selection

4.2.2. Moral hazard: After a transaction, a borrower may not use the borrowed funds as productively as possible. This problem is known as moral hazard

- An obvious way to solve the problem of asymmetric information is to provide more information. In most industrialized countries, *public companies* are required to disclose voluminous amounts of information.
 - Another solution for adverse selection is to make sure lenders are compensated even if borrowers default.
 - If a loan is insured in some way, then the borrower isn't a bad credit risk.
- Collateral is something of value pledged by a borrower to the lender in the event of the borrower's default.
- It is said to *back* or *secure* a loan.
 - Ex: Cars, houses
 - Unsecured loans, like credit cards, are loans made without collateral

4.3. FINANCIAL INTERMEDIARIES AND INFORMATION COSTS

Much of the information that financial intermediaries collect is used to:

Reduce information costs, and

Minimize the effects of adverse selection and moral hazard.

To do this, intermediaries:

- Screen loan applicants,
- Monitor borrowers, and
- Penalize borrowers by enforcing contracts.

4.3.1. Screening and Certifying to Reduce Adverse Selection

The lender uses the number to identify you to a company that collects and analyzes credit information, summarizing it for potential lenders in a credit score.

Underwriters screen and certify firms seeking to raise funds directly in the financial markets

4.3.2. Monitoring to Reduce Moral Hazard

In the financial world, intermediaries insure against this type of moral hazard by monitoring both the firms that issue bonds and those that issue stocks.

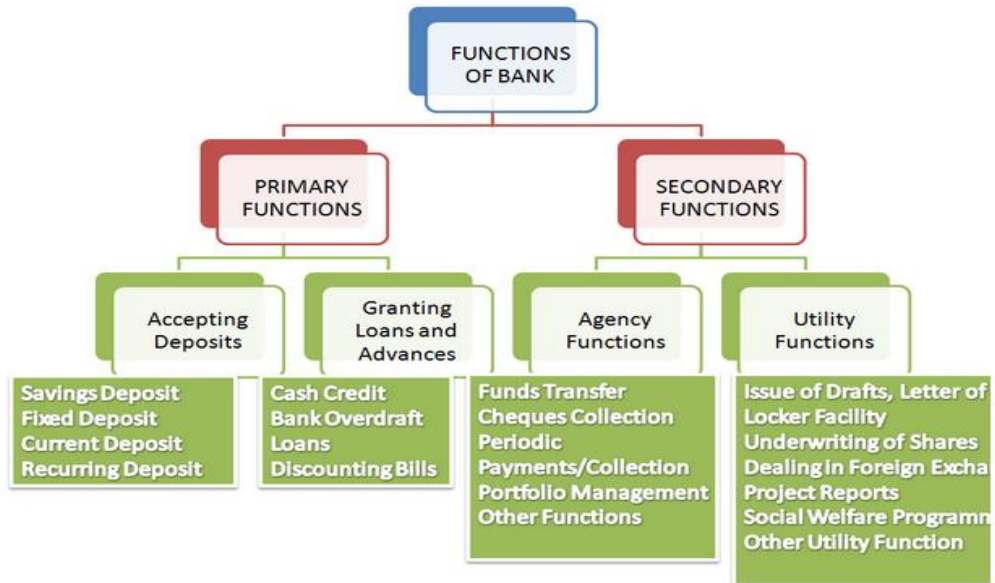
Many hold significant number of shares in individual firms.

They may place a representative on the company's board of directors.

LESSON 5: FINANCIAL INDUSTRY STRUCTURE

5.1. DEPOSITORY INSTITUTIONS

- Functions of Commercial Banks:
- Services Provided:



5.2. NONDEPOSITORY INSTITUTIONS

5.2.1. Insurance companies

All insurance companies accept premiums from policyholders in exchange for the promise of compensation if certain events occur.

For the individual policy holder, insurance is a way to transfer risk

Functions of Insurance companies:

In terms of the financial system as a whole, insurance companies specialize in three of the five functions performed by intermediaries.

- They pool small premiums and make large investment with them;
- They diversify risks across a large population; and

They screen and monitor policyholders to mitigate the problem of asymmetric information.

Two Types of Insurance

- Life insurance.
- Property and casualty insurance
- Life insurance comes in two basic forms.
 - Term life insurance provides a payment to the policy holder's beneficiaries in the event of the insured's death at any time during the policy's term.

- Generally renewable every year as long as the policyholder is less than 65 years old.
- Whole life insurance is a combination of term life insurance and a savings account.
 - The policyholder pays a fixed premium over his/her lifetime in return for a fixed benefit when the policyholder dies.
- Car insurance is an example of property and casualty insurance.
 - It is a combination of
 - Property insurance on the car itself, and
 - Casualty insurance on the driver, who is protected against liability for harm or injury to other people or their property.
 - Holders of property and casualty insurance pay premiums in exchange for protection during the term of the policy

5.2.2. Pension funds

A pension fund offers people the ability to make premium payments today in exchange for promised payments under certain future circumstances.

- They provide an easy way to make sure that a worker saves and has sufficient resources in old age.
- They help savers to diversify their risk.

By pooling the savings of many small investors, pension funds spread the risk.

5.2.3. Finance Companies

- Finance companies are in the lending business.
- They raise funds directly in the financial markets by issuing commercial paper and securities and then use them to make loans to individuals and corporations.
- They are concerned largely with reducing the transactions and information costs that are associated with intermediated finance.
- Most finance companies specialize in one of three loan types:
 - Consumer loans,
 - Business loans, and
 - What are called sales loans.
 - Some also provide commercial and home mortgages.

5.2.4. Securities Firms

The broad class of securities firms includes:

- Brokerages,
- Investment banks, and
- Mutual fund companies.

In one way or another, these are all financial intermediaries.

- The primary services of brokerage firms are:
 - Accounting (to keep track of customers' investment balances),
 - Custody services (to make sure valuable records such as stock certificates are safe), and
 - Access to secondary markets (in which customers can buy and sell financial instruments).
- Brokers also provide loans to customers who wish to purchase stock on margin.
 - They provide liquidity, both by offering check-writing privileges with their investment accounts and by allowing investors to sell assets quickly.
- Mutual-fund companies offer liquidity services as well.
- The primary function of mutual funds, however, is to pool the small savings of individuals in diversified portfolios that are composed of a wide variety of financial instruments.
- All securities firms are very much in the business of producing information.
 - Information is at the heart of the investment banking business.
- Investment banks are the conduits through which firms raise funds in the capital markets.
- Through their underwriting services, these investment banks issue new stocks and a variety of other debt instruments.

The End

REFERENCE RESOURCES:

1. Stephen G. Cecchetti, Kermit L. Schoenholtz, Money, Banking, and Financial Markets, 3rd Edition, McGraw-Hill, 2011
2. http://highered.mcgraw-hill.com/sites/007337590x/student_view0/

SAMPLE TEST

1. Which of the following statements best describes the Federal Reserve?

- A) The Federal Reserve is shrouded in mystery.
- B) The Federal Reserve is not interested in inflation within the economy.
- C) The Federal Reserve is the central bank of the United States.
- D) The Federal Reserve regulates the stock market.

2. Money:

- A) only consists of paper currency.
- B) is used only to pay for purchases.
- C) was once primarily gold and silver coins but has evolved to electronic funds transfers.
- D) can only be obtained from a teller at a bank.

3. Financial markets:

- A) include any market in which goods are traded.
- B) have no oversight by the government.
- C) only include large markets like the New York Stock Exchange.
- D) allow us to buy and sell financial instruments easily.

4. The characteristic of money as a store of value implies:

- A) money is acceptable as payment for goods and services.
- B) money allows us to quote prices and record debts.
- C) money will remain valuable from one day to the next.
- D) none of the above.

5. Wealth:

- A) is the value of assets minus liabilities.
- B) serves as a means of payment.
- C) is the same thing as money.
- D) is measured as liabilities plus assets.

6. Which of the following is not a way that consumers and businesses can make payments:

- A) Stored-value cards.
- B) Checks.
- C) Debit cards.

D) All of the above.

7. Which of the following statements is not true about the future of money?

A) Money as a means of payment will decline.

B) We will likely see more money serving as units of account.

C) With financial instruments evolving, money will be used less as a store of value.

D) Money will continue to be necessary.

8. In indirect finance:

A) lenders loan to borrowers.

B) an institution borrows from the lender and provides funds to the borrower.

C) occurs between a borrower and lender, with or without an intermediary.

D) the borrower is required to have collateral.

9. A loan:

A) is an asset for both the lender and the borrower.

B) is an asset for the lender and a liability for the borrower.

C) is a liability for the lender and an asset for the borrower.

D) is a liability for both the lender and the borrower.

10. Which of the following is not a characteristic of a financial instrument?

A) The financial instrument is always issued by a bank.

B) A financial instrument is a written legal obligation of one party to transfer something of value, usually money.

C) The transaction in a financial instrument is specified to take place at a future date.

D) A financial instrument specifies certain conditions.

PART II: FUNDAMENTALS OF FINANCIAL MANAGEMENT (PSU-FIN 301)

Lesson 1: AN OVERVIEW OF FINANCIAL MANAGEMENT

1.1 AN OVERVIEW OF FINANCE

1.1.1 Finance versus Economics and Accounting

- Accounting is the language of business and it reports the results of past economic activities
- Finance uses the same or similar concepts and tools but finance looks forward into the future.
- The decision making rigors of finance are useless if the results and methods cannot be communicated clearly!

1.1.2 Finance within an organization

The board of directors is the top governing body, and the chairperson of the board is generally the highest-ranking individual. The CEO comes next, but note that the chairperson of the board often serves as the CEO as well.

Below the CEO comes the chief operating officer (COO), who is often also designated as a firm's president. The COO directs the firm's operations, which include marketing, manufacturing, sales, and other operating departments. The CFO, who is generally a senior vice president and the third ranking officer, is in charge of accounting, financing, credit policy, decisions regarding asset acquisitions, and investor relations, which involves communications with stockholders and the press.

1.1.3 Finance

Finance as taught in universities is generally divided into three areas: (1) financial management, (2) capital markets, and (3) investments.

Financial management, also called corporate finance, focuses on decisions relating to how much and what types of assets to acquire, how to raise the capital needed to buy assets, and how to run the firm so as to maximize its value.

Capital markets relate to the markets where interest rates, along with stock and bond prices, are determined. Also studied here are the financial institutions that supply capital to businesses. Banks, investment banks, stockbrokers, mutual funds, insurance

companies, and the like bring together "savers" who have money to invest and businesses, individuals, and other entities that need capital for various purposes.

Investments relate to decisions concerning stocks and bonds and include a number of activities: (1) *Security analysis* deals with finding the proper values of individual securities. (2) *Portfolio theory* deals with the best way to structure portfolios, or "baskets," of stocks and bonds. Rational investors want to hold diversified portfolios in order to limit risks, so choosing a properly balanced portfolio is an important issue for any investor. (3) *Market analysis* deals with the issue of whether stock and bond markets at any given time are "too high," "too low," or "about right." *Behavioral finance*, where investor psychology is examined in an effort to determine if stock prices have been bid up to unreasonable heights in a speculative bubble or driven down to unreasonable lows in a fit of irrational pessimism, is a part of market analysis.

1.2 FORMS OF BUSINESS ORGANIZATION

There are four main forms of business organizations:

(1) Sole proprietorships (or private enterprise) is an unincorporated business owned by one individual. Proprietorships have three important advantages:

- They are easily and inexpensively formed
- They are subject to few government regulations
- They are subject to lower income taxes than are corporation

Proprietorships also have three important limitations:

- Proprietors have unlimited personal liability for the business's debts
- The life of the business is limited to the life of the individual who created it; and to bring in new equity, investors require a change in the structure of the business.
- Because of the first two points, proprietorships have difficulty obtaining large sums of capital; hence, proprietorships are used primarily for small businesses.

(2) A partnership is a legal arrangement between two or more people who decide to do business together. Partnerships are similar to proprietorships.

(3) A corporation is a legal entity created by a state, and it is separate and distinct from its owners and managers; Corporations also have limited liability, unlimited lives, and it is easier to transfer shares of stock in a corporation than one's interest in an unincorporated business.

- **S corporations** are a firm which are taxed as if they were partnerships; thus, they are exempt from the corporate income tax. Besides, S corporation can have no more than 75 stockholders, which limits their use to relatively small, privately owned firms.

- **C corporations** are larger corporations.

(4) **A limited liability company (LLC) and A limited liability partnership (LLP)** are relatively new type of organization that are hybrid between a partnership and a corporation. Both LLCs and LLPs have limited liability like corporations but are taxed like partnerships. The main difference between LLCs and LPs is that LLPs are used for professional firms in the fields of accounting, law, and architecture, while LLCs are used by other businesses.

1.3 STOCK PRICE AND SHAREHOLDER VALUE

The primary financial goal of management is shareholder wealth maximization, which translates to maximizing stock price.

Shareholder Wealth Maximization: The primary goal for managers of publicly owned companies implies that decisions should be made to maximize the long-run value of the firm's common stock.

Value of any asset is present value of cash flow stream to owners. Firms have a number of different departments, including marketing, accounting, production, human resources, and finance. The finance department's principal task is to evaluate proposed decisions and judge how they will affect the stock price and thus shareholder wealth.

1.4 INTRINSIC VALUE AND STOCK VALUE

- **Intrinsic Value:** An estimate of a stock's "true" value based on accurate risk and return data. The intrinsic value can be estimated but not measured precisely.
- **Market Price:** The stock value based on perceived but possibly incorrect information as seen by the marginal investor.
- **Marginal Investor:** An investor whose views determine the actual stock price.
- **Equilibrium:** The situation in which the actual market price equals the intrinsic value, so investors are indifferent between buying or selling a stock.

Lesson 2: ANALYSIS OF FINANCIAL STATEMENT

2.1 FINANCIAL STATEMENTS AND REPORTS

A report issued annually by a corporation to its stockholders. It contains basic financial statements as well as management's analysis of the firm's past operations and future prospects.

2.1.1 The Balance sheet

The balance sheet is a "snapshot" of a firm's position at a specific point in time. The left side of the statement shows the assets that the company owns, while the right side shows the firm's liabilities and stockholders' equity, which are claims against the firm's assets.

Current Assets

Current assets have a life span of one year or less, meaning they can be converted easily into cash. Such assets classes include cash and cash equivalents, accounts receivable and inventory. Cash, the most fundamental of current assets, also includes non-restricted bank accounts and checks. Cash equivalents are very safe assets that can be readily converted into cash; U.S. Treasuries are one such example. Accounts receivables consist of the short-term obligations owed to the company by its clients. Companies often sell products or services to customers on credit; these obligations are held in the current assets account until they are paid off by the clients. Lastly, inventory represents the raw materials, work-in-progress goods and the company's finished goods.

Long-term assets are assets expected to be used for more than one year; they include plant and equipment in addition to intellectual property such as patents and copyrights. Plant and equipment is generally reported net of accumulated depreciation. Depreciation is calculated and deducted from most of these assets, which represents the economic cost of the asset over its useful life.

The claims against assets are of two basic types—liabilities (or money the company owes to others) and stockholders' equity. Liabilities consist of claims that must be paid off within one year (current liabilities), including accounts payable, accruals (total of accrued wages and accrued taxes), and notes payable to banks that are due within one year. Long-term debt includes bonds that mature in more than a year.

Stockholders' equity can be thought of in two ways. First, it is the amount that stockholders paid to the company when they bought shares the company sold to raise capital, in addition to all of the earnings the company has retained over the years:

$$\text{Stockholders' equity} = \text{Paid -in capital} + \text{Retained earnings}$$

The retained earnings are not just the earnings retained in the latest year—they are the cumulative total of all of the earnings the company has earned during its life. Stockholders' equity can also be thought of as a residual:

$$\text{Stockholders' equity} = \text{Total assets} - \text{Total liabilities}$$

2.1.2 The Income Statement

The income statement is one of the three financial statements - the other two are the balance sheet and cash flow statement - with which stock investors need to become familiar. The purpose of this article is to provide the less experienced investor with an understanding of the components of the income statement in order to simplify investment analysis and make it easier to apply it to your own investment decisions.

Net Sales (sales or revenue): These all refer to the value of a company's sales of goods and services to its customers.

Cost of Sales (cost of goods (or products) sold (COGS), and cost of services): For a manufacturer, cost of sales is the expense incurred for raw materials, labor and manufacturing overhead used in the production of its goods. While it may be stated separately, depreciation expense belongs in the cost of sales. For wholesalers and retailers, the cost of sales is essentially the purchase cost of merchandise used for resale. For service-related businesses, cost of sales represents the cost of services rendered or cost of revenues.

Gross Profit (gross income or gross margin): A company's gross profit does more than simply represent the difference between net sales and the cost of sales. Gross profit provides the resources to cover all of the company's other expenses. Obviously, the greater and more stable a company's gross margin, the greater potential there is for positive bottom line (net income) results.

Selling, General and Administrative Expenses: Often referred to as SG&A, this account comprises a company's operational expenses. Financial analysts generally assume that management exercises a great deal of control over this expense category. The

trend of SG&A expenses, as a percentage of sales, is watched closely to detect signs, both positive and negative, of managerial efficiency.

Operating Income: Deducting SG&A from a company's gross profit produces operating income. This figure represents a company's earnings from its normal operations before any so-called non-operating income and/or costs such as interest expense, taxes and special items. Income at the operating level, which is viewed as more reliable, is often used by financial analysts rather than net income as a measure of profitability.

Interest Expense: This item reflects the costs of a company's borrowings. Sometimes companies record a net figure here for interest expense and interest income from invested funds.

Pretax Income: Another carefully watched indicator of profitability, earnings garnered before the income tax expense is an important step in the income statement. Numerous and diverse techniques are available to companies to avoid and/or minimize taxes that affect their reported income. Because these actions are not part of a company's business operations, analysts may choose to use pretax income as a more accurate measure of corporate profitability.

Income Taxes: As stated, the income tax amount has not actually been paid - it is an estimate, or an account that has been created to cover what a company expects to pay.

Special Items or Extraordinary Expenses: A variety of events can occasion charges against income. They are commonly identified as restructuring charges, unusual or nonrecurring items and discontinued operations. These write-offs are supposed to be one-time events. Investors need to take these special items into account when making inter-annual profit comparisons because they can distort evaluations.

Net Income (net profit or net earnings): This is the bottom line, which is the most commonly used indicator of a company's profitability. Of course, if expenses exceed income, this account caption will read as a net loss. After the payment of preferred dividends, if any, net income becomes part of a company's equity position as retained earnings. Supplemental data is also presented for net income on the basis of shares outstanding (basic) and the potential conversion of stock options, warrants etc.

2.1.3 Statement of Cash Flows

Statement of Cash Flows is report that shows how things that affect the balance sheet and income statement affect the firm's cash flows.

Three categories

- Operating activities
- Investing activities
- Financing activities

2.2 RATIO ANALYSIS

2.2.1 Liquidity ratios

Liquidity Ratios give us an idea of the firm's ability to pay off debts that are maturing within a year.

2.2.1.1. Current ratio

The primary liquidity ratio is the current ratio, which is calculated by dividing current assets by current liabilities:

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

Current assets include cash, marketable securities, accounts receivable, and inventories.

If a company is having financial difficulty, it typically begins to pay its accounts payable more slowly and to borrow more from its bank, both of which increase current liabilities. If current liabilities are rising faster than current assets, the current ratio will fall; and this is a sign of possible trouble.

2.2.1.2 Quick or Acid Test, Ratio

The quick, or acid test, ratio is calculated by deducting inventories from current assets and then dividing the remainder by current liabilities:

$$\text{Quick ratio} = \frac{(\text{Current assets} - \text{Inventories})}{\text{Current liabilities}}$$

Inventories are typically the least liquid of a firm's current assets; and if sales slow down, they might not be converted to cash as quickly as expected. Also, inventories are the assets on which losses are most likely to occur in the event of liquidation. Therefore, the quick ratio, which measures the firm's ability to pay off short-term obligations without relying on the sale of inventories, is important.

2.2.2 Asset management ratios

Asset management ratios give us an idea of how efficiently the firm is using its assets.

2.2.2.1 *Inventory Turnover Ratio*

“Turnover ratios” divide sales by some asset: Sales/Various assets. As the name implies, these ratios show how many times the particular asset is “turned over” during the year. Here is the inventory turnover ratio:

$$\text{Inventory Turnover} = \text{Sales/Inventories}$$

This ratio is regarded as a test of efficiency and indicates the rapidity with which the company is able to move its merchandise.

2.2.2.2 *Days Sales Outstanding*

Accounts receivable are evaluated by the days sales outstanding (DSO) ratio, also called the average collection period (ACP). It is calculated by dividing accounts receivable by the average daily sales to find how many days’ sales are tied up in receivables. Thus, the DSO represents the average length of time the firm must wait after making a sale before receiving cash.

$$\text{DSO} = \text{Receivables}/\text{Avg. sales per day} = \text{Receivables}/(\text{Annual sales}/365)$$

2.2.2.3 *Fixed Assets Turnover Ratio*

The fixed assets turnover ratio, which is the ratio of sales to net fixed assets, measures how effectively the firm uses its plant and equipment:

$$\text{Fixed Assets Turnover} = \text{Sales}/\text{Average fixed assets}$$

Potential problems may arise when interpreting the fixed assets turnover ratio. Recall that fixed assets are shown on the balance sheet at their historical costs less depreciation. Inflation has caused the value of many assets that were purchased in the past to be seriously understated. Therefore, if we compare an old firm whose fixed assets have been depreciated with a new company with similar operations that acquired its fixed assets only recently, the old firm will probably have the higher fixed assets turnover ratio. However, this would be more reflective of the age of the assets than of inefficiency on the part of the new firm. The accounting profession is trying to develop procedures for making financial statements reflect current values rather than historical values, which would help us make better comparisons. However, at the moment, the problem still exists; so financial analysts must recognize this problem and deal with it judgmentally.

2.2.2.4 *Total Assets Turnover Ratio*

The total assets turnover ratio measures the turnover of all of the firm’s assets; and it is calculated by dividing sales by total assets:

$$\text{Total Assets Turnover} = \text{Sales}/\text{Average Total assets}$$

2.2.3 Debt management ratios

Debt Management Ratios attempt to measure the firm's use of Financial Leverage and ability to avoid financial distress in the long run. These ratios are also known as Long-Term Solvency Ratios.

Debt is called Financial Leverage because the use of debt can improve returns to stockholders in good years and increase their losses in bad years. Debt generally represents a fixed cost of financing to a firm. Thus, if the firm can earn more on assets which are financed with debt than the cost of servicing the debt then these additional earnings will flow through to the stockholders. Moreover, our tax law favors debt as a source of financing since interest expense is tax deductible.

With the use of debt also comes the possibility of financial distress and bankruptcy. The amount of debt that a firm can utilize is dictated to a great extent by the characteristics of the firm's industry. Firms which are in industries with volatile sales and cash flows cannot utilize debt to the same extent as firms in industries with stable sales and cash flows. Thus, the optimal mix of debt for a firm involves a tradeoff between the benefits of leverage and possibility of financial distress.

2.2.3.1 Total Debt to Total Assets

The ratio of total debt to total assets, generally called the debt ratio, measures the percentage of funds provided by creditors:

$$\text{Debt ratio} = \text{Total debt}/\text{Total assets}$$

Total debt includes all current liabilities and long-term debt. Creditors prefer low debt ratios because the lower the ratio, the greater the cushion against creditors' losses in the event of liquidation. Stockholders, on the other hand, may want more leverage because it can magnify expected earnings.

Generally, the higher the ratio, the more financial leverage is employed by the firm, and the higher the financial risk.

2.2.3.2 Times-Interest-Earned Ratio

The times-interest-earned (TIE) ratio is determined by dividing earnings before interest and taxes by the interest charges:

$$\text{TIE} = \text{EBIT}/\text{Interest expenses}$$

The TIE ratio measures the extent to which operating income can decline before the firm is unable to meet its annual interest costs. Failure to pay interest will bring legal action by the firm's creditors and probably result in bankruptcy. Note that earnings before interest and taxes, rather than net income, is used in the numerator. Because interest is paid with pretax dollars, the firm's ability to pay current interest is not affected by taxes.

Generally, the higher the ratio, the more easily interest obligations can be met out of earnings. A ratio of less than 1.0 means earnings are insufficient to meet the interest payments.

2.2.4 Profitability ratios

Profitability Ratios show the combined effects of liquidity, asset management, and debt on operating results

2.2.4.1 Operating margin

The operating margin, calculated by dividing operating income (EBIT) by sales, gives the operating profit per dollar of sales:

$$\text{Operating Margin} = \text{EBIT/Sales}$$

2.2.4.2 Profit margin

The profit margin, also sometimes called the net profit margin, is calculated by dividing net income by sales

$$\text{Profit Margin} = \text{Net Income/Sales}$$

2.2.4.3 Return on Total Assets

Net income divided by total assets gives us the return on total assets (ROA):

$$\text{ROA} = \text{Net income/Total assets}$$

The Return on Assets of a company determines its ability to utilize the Assets employed in the company efficiently and effectively to earn a good return. The ratio measures the percentage of profits earned per dollar of Asset and thus is a measure of efficiency of the company in generating profits on its Assets.

2.2.4.4 Basic Earning Power Ratio

The basic earning power (BEP) ratio is calculated by dividing operating income (EBIT) by total assets:

$$\text{Basic earning power} = \text{EBIT/Total Assets}$$

This ratio shows the raw earning power of the firm's assets before the influence of taxes and debt, and it is useful when comparing firms with different debt and tax situations.

2.2.4.5 Return on Common Equity

The most important, or bottom-line, accounting ratio is the return on common equity (ROE), found as follows:

$$\text{ROE} = \text{Net income/Total common equity}$$

The Return on Equity of a company measures the ability of the management of the company to generate adequate returns for the capital invested by the owners of a company. Stockholders expect to earn a return on their money, and this ratio tells how well they are doing in an accounting sense. Generally a return of 10% would be desirable to provide dividends to owners and have funds for future growth of the company

2.2.5 Market value ratios

Market Value Ratios relate the firm's stock price to its earnings and book value per share. If the liquidity, asset management, debt management, and profitability ratios all look good and if investors think these ratios will continue to look good in the future, the market value ratios will be high, the stock price will be as high as can be expected, and management will be judged to have been doing a good job.

The market value ratios are used in three primary ways: (1) by investors when they are deciding to buy or sell a stock, (2) by investment bankers when they are setting the share price for a new stock issue (an IPO), and (3) by firms when they are deciding how much to offer for another firm in a potential merger.

2.2.5.1 Price/Earning Ratio

The price/earnings (P/E) ratio shows how much investors are willing to pay per dollar of reported profits.

$$\text{P/E} = \text{Price/Earnings per share}$$

2.2.5.2 Market/Book Ratio

The ratio of a stock's market price to its book value gives another indication of how investors regard the company. Companies that are well regarded by investors—which means low risk and high growth have high M/B ratios.

$$\text{M/B} = \text{Market price/Book value per share}$$

In which: **Book value per share = Common equity/Shares outstanding**

2.2.6 The Dupont equation

DuPont analysis is an expression which breaks ROE into three parts. The name comes from the DuPont Corporation that started using this formula in the 1920s

$$\text{ROE} = \frac{\text{Profit}}{\text{margin}} \times \frac{\text{Total assets}}{\text{turnover}} \times \frac{\text{Equity}}{\text{multiplier}}$$
$$\text{ROE} = (\text{NI/Sales}) \times (\text{Sales/TA}) \times (\text{TA/Equity})$$

Lesson 3: TIME VALUE OF MONEY

3.1 FUTURE VALUES

Future Value (FV): The amount to which a cash flow or series of cash flows will grow over a given period of time when compounded at a given interest rate.

The process of going to future values (FVs) from present values (PVs) is called compounding.

$$\text{FV}_N = \text{PV}(1 + i)^N$$

3.2 PRESENT VALUE

Present Value (PV) is the value today of a future cash flow or series of cash flows.

$$\text{PV} = \frac{\text{FV}_N}{(1 + i)^N}$$

3.3 FINDING INTEREST RATES

Using financial calculator or using this formular to find interest rate:

$$i = \sqrt[N]{\frac{\text{FV}}{\text{PV}}} - 1$$

3.4 FINDING THE NUMBER OF YEARS

Using financial calculator or using this formular to find the number of year:

$$N = \log_{(1+i)} \frac{\text{FV}}{\text{PV}}$$

3.5 FUTURE VALUE OF AN ORDINARY ANNUITY

Future value of an ordinary is the future value of an ordinary annuity over N periods.

$$\mathbf{FVA}_N = \mathbf{PMT} \left[\frac{(1+i)^N - 1}{i} \right]$$

3.6 FUTURE VALUE OF AN ORDINARY ANNUITY DUE

Future value of an ordinary is the future value of an annuity due over N periods.

$$\mathbf{FVA}_{\text{due}} = \mathbf{FVA}_{\text{ordinary}}(1 + I)$$

3.7 PRESENT VALUE OF AN ANNUITY

The present value of an annuity, PVAN, can be found using the step-by-step, formula, calculator, or spreadsheet method.

$$\mathbf{PVA}_N = \mathbf{PMT} \left[\frac{1 - (1+i)^{-N}}{i} \right]$$

3.8 FINDING ANNUITY PAYMENTS, PERIODS, AND INTEREST RATES

Finding annuity payments

$$\mathbf{PMT} = \mathbf{FVA}_N \times \frac{i}{(1+i)^N - 1}$$

$$\mathbf{PMT} = \mathbf{PVA}_N \times \frac{i}{1 - (1+i)^{-N}}$$

Comparing Interest rates

The nominal interest rate (I_{NOM}), also called the annual percentage rate (APR) (or quoted or stated rate), is the rate that credit card companies, student loan officers, auto dealers, and so forth, tell you they are charging on loans.

The effective annual rate, abbreviated EFF%, is also called the equivalent annual rate (EAR). This is the rate that would produce the same future value under annual compounding as would more frequent compounding at a given nominal rate.

If a loan or an investment uses annual compounding, its nominal rate is also its effective rate. However, if compounding occurs more than once a year, the EFF% is higher than I_{NOM}

$$\mathbf{Effective\ annual\ rate\ (EFF\%)} = \left(1 + \frac{I_{\text{NOM}}}{M}\right)^M - 1$$

M: Periods per year (Number of payments per year)

N: Number of years

Number of periods = M x N

I_{PER} : Periodic rate = I/M

Lesson 4: BOND AND STOCK VALUATION

4.1 BOND VALUATION

4.1.1 Key characteristics of bonds

Bond is a long-term debt instrument in which a borrower agrees to make payments of principal and interest, on specific dates, to the holders of the bond.

Treasury bonds, generally called Treasuries and sometimes referred to as government bonds, are issued by the federal government. It is reasonable to assume that the U.S. government will make good on its promised payments, so Treasuries have no default risk. However, these bonds' prices do decline when interest rates rise; so they are not completely riskless.

Corporate bonds are issued by business firms. Unlike Treasuries, corporates are exposed to default risk if the issuing company gets into trouble, it may be unable to make the promised interest and principal payments and bondholders may suffer losses. Different corporate bonds have different levels of default risk depending on the issuing company's characteristics and the terms of the specific bond. Default risk is often referred to as "credit risk", the larger this risk, the higher the interest rate investors demand.

Municipal bonds, or munis, is the term given to bonds issued by state and local governments. Like corporates, munis are exposed to some default risk; but they have one major advantage over all other bonds: the interest earned on most munis is exempt from federal taxes and from state taxes if the holder is a resident of the issuing state. Consequently, the market interest rate on a munis is considerably lower than on a corporate of equivalent risk.

Foreign bonds are issued by a foreign government or a foreign corporation. All foreign corporate bonds are exposed to default risk, as are some foreign government bonds. An additional risk exists when the bonds are denominated in a currency other than that of the investor's home currency.

Key characteristics of bonds

- Par value – face amount of the bond, which is paid at maturity (assume \$1,000).
- Coupon interest rate – stated interest rate (generally fixed) paid by the issuer.
Multiply by par value to get dollar payment of interest.
- Maturity date – years until the bond must be repaid.

- Issue date – when the bond was issued.
- Yield to maturity – rate of return earned on a bond held until maturity (also called the “promised yield”).

4.1.2 Bond valuation

The value of any financial asset - a stock, a bond, a lease, or even a physical asset such as an apartment building or a piece of machinery - is the present value of the cash flows the asset is expected to produce.

$$V_B = \sum \frac{INT}{(1+r_d)^t} + \frac{M}{(1+r_d)^N}$$

r_d : the market rate of interest on the bond. This is the discount rate used to calculate the present value of the cash flows, which is also the bond’s price. Note that r_d is not the coupon interest rate. However, r_d is equal to the coupon rate at times, especially the day the bond is issued; and when the two rates are equal, as in this case, the bond sells at par.

N : the number of years before the bond matures

INT : dollars of interest paid each year = Coupon rate x Par value

M : the par, or maturity, value of the bond. This amount must be paid at maturity.

Discount Bond: A bond that sells below its par value; occurs whenever the going rate of interest is above the coupon rate.

Premium Bond: A bond that sells above its par value; occurs whenever the going rate of interest is below the coupon rate.

To summarize:

$r_d =$ coupon rate, fixed-rate bond sells at par; hence, it is a par bond

$r_d >$ coupon rate, fixed-rate bond sells below par; hence, it is a discount bond

$r_d <$ coupon rate, fixed-rate bond sells above par; hence, it is a premium bond

4.2 STOCK VALUATION

4.2.1. The discounted dividend model

$$\hat{P}_0 = \frac{D_0}{(1+r_s)^1} + \frac{D_1}{(1+r_s)^2} + \dots + \frac{D_\infty}{(1+r_s)^\infty}$$

D_t : the dividend a stockholder expects to receive at the end of each Year t . D_0 is the last dividend the company paid. Since it has already been paid, a buyer of the stock will not receive D_0 . The first dividend a new buyer will receive is D_1 , which is paid at

the end of Year 1. D2 is the dividend expected at the end of Year 2; D3, at the end of Year 3; and so forth. D0 is known with certainty; but D1, D2, and all other future dividends are expected values; and different investors can have different expectations.

r_s : required, or minimum acceptable, rate of return on the stock considering its riskiness and the returns available on other investments. Different investors typically have different opinions, but the key is again the marginal investor.

4.2.2 Constant growth stock

Constant Growth (Gordon) Model: Used to find the value of a constant growth stock.

$$\hat{P}_0 = \frac{D_0(1+g)}{r_s - g} = \frac{D_1}{r_s - g}$$

g : expected growth rate in dividends as predicted by an investor. If dividends are expected to grow at a constant rate, g should also equal the expected growth rate in earnings and the stock's price. Different investors use different g 's to evaluate a firm's stock; but the market price, P , is based on g as estimated by the marginal investor.

4.2.3 Valuing non-constant growth

Supernormal (Nonconstant) Growth: The part of the firm's life cycle in which it grows much faster than the economy as a whole.

Terminal (Horizon) Date: The date when the growth rate becomes constant. At this date, it is no longer necessary to forecast the individual dividends.

Horizon (Terminal) Value: The value at the horizon date of all dividends expected thereafter.

$$\hat{P}_0 = \frac{D_0}{(1+r_s)^1} + \frac{D_1}{(1+r_s)^2} + \dots + \frac{D_N}{(1+r_s)^N} + \frac{\hat{P}_N}{(1+r_s)^N}$$

In which,

$$\text{Horizon Value} = \hat{P}_N = \frac{D_{N+1}}{r_s - g}$$

Lesson 5: THE BASIC OF CAPITAL BUDGETING

5.1 Net present value (NPV)

Net Present Value (NPV) is a method of ranking investment proposals using the NPV, which is equal to the present value of future net cash flows, discounted at the cost of capital

$$\text{NPV} = \text{CF}_0 + \frac{\text{CF}_1}{(1+r)^1} + \frac{\text{CF}_2}{(1+r)^2} + \dots + \frac{\text{CF}_N}{(1+r)^N} = \sum_{t=0}^N \frac{\text{CF}_t}{(1+r)^t}$$

NPV is the single best criterion because it provides a direct measure of value the project adds to shareholder wealth.

Independent Projects: Projects with cash flows that are not affected by the acceptance or nonacceptance of other projects.

Mutually Exclusive: Projects A set of projects where only one can be accepted.

Decision Rules:

- Independent projects: if $\text{NPV} > 0$, accept
- Mutually exclusive projects: accept the project with the highest NPVs

5.2 Internal rate of return (IRR)

Internal Rate of Return (IRR) is the discount rate that forces a project's NPV to equal zero.

$$\text{CF}_0 + \frac{\text{CF}_1}{(1+\text{IRR})^1} + \frac{\text{CF}_2}{(1+\text{IRR})^2} + \dots + \frac{\text{CF}_N}{(1+\text{IRR})^N} = 0$$

Trial and Error:

Step 1: Guess an interest rate (r_1). Compute NPV_1 at the guessed (r_1) value

Step 2: Guess an interest rate (r_2).

- If $\text{NPV}_1 > 0$, then increase r , Compute NPV_2 at the guessed (r_2) value: $\text{NPV}_2 < 0$

- If $\text{NPV}_1(r_1) < 0$, then decrease r , Compute NPV_2 at the guessed (r_2) value: NPV_2

> 0

Step 3: This equation can be used to determine the appropriate Internal rate of return

$$\text{IRR} = r_1 + (r_2 - r_1) \frac{\text{NPV}_1}{\text{NPV}_1 - \text{NPV}_2}$$

Decision Rules:

- Independent projects: if $\text{IRR} > \text{WACC}$, accept.

- Mutually exclusive projects: accept the project with the highest IRR that exceeds the WACC

5.3 Payback period

Payback Period is the length of time required for an investment's net revenues to cover its cost.

Payback period = number of years priors to full recovery + unrecovery cost at start of year/cash flow during full recovery year

Payback provide indications of a project's liquidity and risk. A long payback means that investment dollars will be locked up for a long time; hence, the project is relatively illiquid. In addition, a long payback means that cash flows must be forecasted far out into the future, and that probably makes the project riskier than one with a shorter payback.

EXERCISE

1. Baker Brothers has a DSO of 40 days, and its annual sales are \$7,300,000. What is its accounts receivable balance? Assume that it uses a 365-day year.
2. Bartley Barstools has an equity multiplier of 2.4, and its assets are financed with some combination of long-term debt and common equity. What is its debt ratio?
3. Doublewide Dealers has an ROA of 10%, a 2% profit margin, and an ROE of 15%. What is its total assets turnover? What is its equity multiplier?
4. Jaster Jets has \$10 billion in total assets. Its balance sheet shows \$1 billion in current liabilities, \$3 billion in long-term debt, and \$6 billion in common equity. It has 800 million shares of common stock outstanding, and its stock price is \$32 per share. What is Jaster's market/book ratio?
5. A company has an EPS of \$2.00, a cash flow per share of \$3.00, and a price/cash flow ratio of 8.0x. What is its P/E ratio?
6. A firm has a profit margin of 2% and an equity multiplier of 2.0. Its sales are \$100 million, and it has total assets of \$50 million. What is its ROE?
7. Ebersoll Mining has \$6 million in sales, its ROE is 12%, and its total assets turnover is 3.2x. The company is 50% equity financed. What is its net income?

8. Midwest Packaging's ROE last year was only 3%; but its management has developed a new operating plan that calls for a total debt ratio of 60%, which will result in annual interest charges of \$300,000. Management projects an EBIT of \$1,000,000 on sales of \$10,000,000, and it expects to have a total assets turnover ratio of 2.0. Under these conditions, the tax rate will be 34%. If the changes are made, what will be the company's return on equity?

9. Central City Construction (CCC) needs \$1 million of assets to get started, and it expects to have a basic earning power ratio of 20%. CCC will own no securities, so all of its income will be operating income. If it so chooses, CCC can finance up to 50% of its assets with debt, which will have an 8% interest rate. Assuming a 40% tax rate on all taxable income, what is the difference between CCC's expected ROE if it finances with 50% debt versus its expected ROE if it finances entirely with common stock?

10. It is now January 1, 2009; and you will need \$1,000 on January 1, 2013, in 4 years. Your bank compounds interest at an 8% annual rate.

a. How much must you deposit today to have a balance of \$1,000 on January 1, 2013?

b. If you want to make four equal payments on each January 1 from 2010 through 2013 to accumulate the \$1,000, how large must each payment be? (Note that the payments begin a year from today.)

c. If your father offers to make the payments calculated in Part b (\$221.92) or to give you \$750 on January 1, 2010 (a year from today), which would you choose? Explain.

d. If you have only \$750 on January 1, 2010, what interest rate, compounded annually for 3 years, must you earn to have \$1,000 on January 1, 2013?

e. Your father offers to give you \$400 on January 1, 2010. You will then make six additional equal payments each 6 months from July 2010 through January 2013. If your bank pays 8% compounded semiannually, how large must each payment be for you to end up with \$1,000 on January 1, 2013?

11. Your parents will retire in 18 years. They currently have \$250,000, and they think they will need \$1,000,000 at retirement. What annual interest rate must they earn to reach their goal, assuming they don't save any additional funds?

12. You have \$42,180.53 in a brokerage account, and you plan to deposit an additional \$5,000 at the end of every future year until your account totals \$250,000. You expect to earn 12% annually on the account. How many years will it take to reach your goal?

13. What's the future value of a 7%, 5-year ordinary annuity that pays \$300 each year? If this was an annuity due, what would its future value be?

14. An investment will pay \$100 at the end of each of the next 3 years, \$200 at the end of Year 4, \$300 at the end of Year 5, and \$500 at the end of Year 6. If other investments of equal risk earn 8% annually, what is its present value? its future value?

15. You want to buy a car, and a local bank will lend you \$20,000. The loan will be fully amortized over 5 years (60 months), and the nominal interest rate will be 12% with interest paid monthly. What will be the monthly loan payment?

16. Your client is 40 years old; and she wants to begin saving for retirement, with the first payment to come one year from now. She can save \$5,000 per year; and you advise her to invest it in the stock market, which you expect to provide an average return of 9% in the future.

a. If she follows your advice, how much money will she have at 65?

b. How much will she have at 70?

c. She expects to live for 20 years if she retires at 65 and for 15 years if she retires at 70. If her investments continue to earn the same rate, how much will she be able to withdraw at the end of each year after retirement at each retirement age?

17. Callaghan Motors' bonds have 10 years remaining to maturity. Interest is paid annually, they have a \$1,000 par value, the coupon interest rate is 8%, and the yield to maturity is 9%. What is the bond's current market price?

18. Nungesser Corporation's outstanding bonds have a \$1,000 par value, a 9% semiannual coupon, 8 years to maturity, and an 8.5% YTM.

a. What is the bond's price?

b. Assume that the yield to maturity remains constant for the next 3 years. What will the price be 3 years from today?

19. Thomas Brothers is expected to pay a \$0.50 per share dividend at the end of the year (that is, $D_1 = \$0.50$). The dividend is expected to grow at a constant rate of 7% a

year. The required rate of return on the stock, r_s , is 15%. What is the stock's current value per share?

20. Harrison Clothiers' stock currently sells for \$20.00 a share. It just paid a dividend of \$1.00 a share (that is, $D_0 = \$1.00$). The dividend is expected to grow at a constant rate of 6% a year. What stock price is expected 1 year from now? What is the required rate of return?

21. Hart Enterprises recently paid a dividend, D_0 , of \$1.25. It expects to have nonconstant growth of 20% for 2 years followed by a constant rate of 5% thereafter. The firm's required return is 10%.

- a. How far away is the terminal, or horizon, date?
- b. What is the firm's horizon, or terminal, value?
- c. What is the firm's intrinsic value today?

22. Microtech Corporation is expanding rapidly and currently needs to retain all of its earnings; hence, it does not pay dividends. However, investors expect Microtech to begin paying dividends, beginning with a dividend of \$1.00 coming 3 years from today. The dividend should grow rapidly—at a rate of 50% per year—during Years 4 and 5; but after Year 5, growth should be a constant 8% per year. If the required return on Microtech is 15%, what is the value of the stock today?

23. The Seattle Corporation has been presented with an investment opportunity that will yield cash flows of \$30,000 per year in Years 1 through 4, \$35,000 per year in Years 5 through 9, and \$40,000 in Year 10. This investment will cost the firm \$150,000 today, and the firm's cost of capital is 10 percent. Assume cash flows occur evenly during the year, $1/365$ th each day. What is the payback period for this investment?

The Seattle Corporation has been presented with an investment opportunity that will yield cash flows of \$30,000 per year in Years 1 through 4, \$35,000 per year in Years 5 through 9, and \$40,000 in Year 10. This investment will cost the firm \$150,000 today, and the firm's cost of capital is 10 percent. Assume cash flows occur evenly during the year, $1/365$ th each day. What is the payback period for this investment?

24. Coughlin Motors is considering a project with the following expected cash flows:

	Project
Year	Cash Flow
0	-\$700 million
1	200 million
2	370 million
3	225 million
4	700 million

The project's WACC is 10 percent. What is the project's discounted payback?

25. Two projects being considered are mutually exclusive and have the following projected cash flows:

	Project A	Project B
Year	Cash Flow	Cash Flow
0	-\$50,000	-\$50,000
1	15,625	0
2	15,625	0
3	15,625	0
4	15,625	0
5	15,625	99,500

If the required rate of return on these projects is 10 percent, which would be chosen and why?

26. An insurance firm agrees to pay you \$3,310 at the end of 20 years if you pay premiums of \$100 per year at the end of each year for 20 years. Find the internal rate of return to the nearest whole percentage point.

30. Projects X and Y have the following expected net cash flows:

	Project X	Project Y
Year	Cash Flow	Cash Flow
0	-\$500,000	-\$500,000
1	250,000	350,000
2	250,000	350,000
3	250,000	

Assume that both projects have a 10 percent cost of capital. What is the net present value (NPV) of the project that has the highest IRR?

SAMPLE EXAM

Part 1: (4.00 points) Choose the best answer

Question 1: *Marginal Investor is an investor whose views determine*

- A the intrinsic value
- B the actual stock price
- C the equilibrium
- D Both a and b are correct

Question 2: *What are the two items whose sum is the cost of equity?*

- A interest and dividends
- B dividends and capital gains
- C interest and retained earnings
- D dividends and retained earnings

Question 3: *Which sentence is correct?*

- A Higher risk and lower inflation lead to higher interest rates
- B Lower risk and higher inflation lead to higher interest rates
- C Higher risk and higher inflation lead to lower interest rates
- D Higher risk and higher inflation lead to higher interest rates

Question 4: *What is the beta of a stock that requires 10% on rate of return? Assuming that the risk-free rate is 6% and the market premium is 3%?*

- A 1.4
- B 1.6
- C 1.5
- D None is correct

Question 5: *An investment will pay \$100 at the end of each of the next 3 years, \$200 at the end of Year 4, \$300 at the end of Year 5, and \$500 at the end of Year 6. If other investments of equal risk earn 8% annually, what is its present value?*

- A \$1,399.44
- B \$745.65
- C \$969.72
- D \$1,632.30

Question 6: *Which security is traded on money market?*

- A Long-term bank loan
- B T-bill

- C Stock
- D T-bond

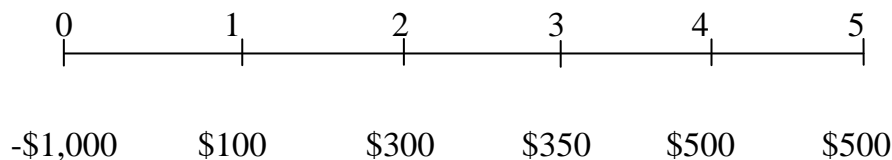
Question 7: *The risk that remains in a portfolio after diversification has eliminated all company-specific risk*

- A Market Risk
- B Diversifiable Risk
- C company-specific Risk
- D Unsystematic Risk

Question 8: *Baker Brothers has account receivable of \$800,000, and its annual sales are \$7,300,000, its earnings before tax and interest (EBIT) are \$10,000,000. What is its Days sale outstanding (DSO)? Assume that it uses a 365-day year.*

- A 40 days
- B 28.8 days
- C 29.2 days
- D None is correct

Question 9: *What is the project's NPV if the cost of its capital is 10% and the net cash flows of the project are as follow:*



- A \$1,290.00
- B \$560.23
- C \$253.77
- D None is correct

Question 10: *Which of the following statements is CORRECT?*

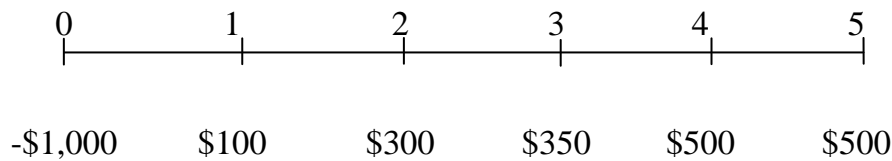
- A Sole proprietorships and partnerships generally have a tax advantage over corporations.
- B Corporations of all types are subject to the corporate income tax.
- C Sole proprietorships are subject to more regulations than corporations.
- D One of the disadvantages of incorporating your business is that you could become subject to the firm's liabilities in the event of bankruptcy.

Question 11: *Which is the bond whose interest rate fluctuates with shifts in the general level of interest rates?*

- A Floating-Rate Bond

- B Fixed-Rate Bond
- C Zero Coupon Bond
- D Original Issue Discount (OID) Bond

Question 12: *What is the project's discounted payback period if the cost of its capital is 10% and the net cash flows of the project are as follow:*



- A None is correct
- B 3.82 year
- C 3.89 year
- D 4.18 year

Question 13: *Miny Corporation has just paid a dividend of \$2.00 (that is, $D_0 = \$2.00$), and its required rate of return is 15%. If dividends are expected to grow at a constant rate (g) of 10%, what is Miny's expected stock price 3 years from now?*

- A \$40.00
- B \$44.00
- C \$53.24
- D None is correct

Question 14: *What is liquidity asset?*

- A An asset that can be converted to cash slowly without having to reduce the asset's price very much
- B An asset that can be converted to cash quickly with reducing the asset's price very much
- C An asset that can be converted to cash quickly without having to reduce the asset's price very much
- D An asset that can be converted to cash slowly with reducing the asset's price very much

Question 15: *The the probability distribution, the the risk.*

- A Tighter/higher
- B Lower/tighter
- C Tighter/lower
- D Higher/tighter

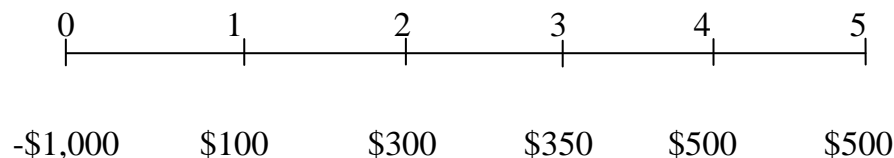
Question 16: *Which of the following statements is correct?*

- A The balance sheet is a "snapshot" of a firm's position at a specific point in time
- B The balance sheet is a "snapshot" of a firm's position during a period of time, generally a year
- C The income statement is a report summarizing a firm's revenues, expenses, and profits at a specific point of time
- D b and c are both correct

Question 17: is a long-term contract under which a borrower agrees to make payments of interest and principal on specific dates to the holders.

- A A stock
- B A bond
- C A dividend
- D a and b are correct

Question 18: What is the project's IRR if the net cash flows of the project are as follow:



- A 17.63%
- B 19.32%
- C None is correct
- D 16.34%

Question 19: Jasons' common stock currently trades at \$35.00 a share. It is expected to pay an annual dividend of \$3.00 a share at the end of the year, and the constant growth rate is 5% a year. If the company issued new stock, it would incur a 10% flotation cost. What would be the cost of equity from new stock?

- A 13.57%
- B 15.00%
- C 14.52%
- D 14.00%

Question 20: A bond that matures in 8 years has a par value of \$1,000 and an annual coupon payment of \$70; its market interest rate is 9%. What is its price?

- A \$792.15
- B \$902.54
- C \$889.30
- D None is correct

Part 2 (2.00 points) Short answer

1. Assume that you will receive \$2,000 a year in Years 1 through 5, \$3,000 a year in Years 6 through 8, and \$4,000 in Year 9, with all cash flows to be received at the end of the year. If you require a 14 percent rate of return, what is the present value of these cash flows?

2. Russell Securities has \$100 million in total assets and its corporate tax rate is 40 percent. The company recently reported that its basic earning power (BEP) ratio was 15 percent and its return on assets (ROA) was 9 percent. What was the company's interest expense?

Part 2 (4.00 points)

Mack Industries just paid a dividend of \$1.00 per share ($D_0 = \1.00). Analysts expect the company's dividend to grow 20 percent this year ($D_1 = \$1.20$) and 15 percent next year. After two years the dividend is expected to grow at a constant rate of 5 percent. The required rate of return on the company's stock is 12 percent.

- a. What should be the company's current stock price?
- b. What stock price is expected 1 year from now?

REFERENCE MATERIAL

1. Brigham and Houston (2009), *Fundamentals of Financial Management*, 12th Ed ISBN: 978-0-538-79935-5, South-Western Cengage Learning

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Đà Nẵng, ngày 02 tháng 05 năm 2015

Ban giám hiệu

Phòng Đào tạo

Khoa ĐTQT

Tổ PSU-TCNH

Nguyễn Như Hiền Hòa