

# Slides 2 - Asset Classes and Financial Instruments

1. a. \_\_\_\_\_ are the markets for short-term debt securities, while \_\_\_\_\_ are the markets for long-term debt securities and stocks.

- ☐ Credit markets; capital markets
- ☐ Credit markets; stock markets
- ☒ Money markets; capital markets
- ☐ Money markets; stock markets

Short-term debt securities, such as treasury bills and certificates of deposit, are said to trade in the money market. Long-term debt securities, such as treasury notes and bonds, commercial and municipal bonds, and stocks trade in the capital market.

Securities with a time to maturity of up to one year are considered money market instruments, while securities with a time to maturity of more than one year, or no maturity date at all (like stocks), are considered capital market instruments.

2. a. Which of the following are money market instruments?

Check all that apply:

- ☒ Certificates of deposit
- ☒ Commercial paper
- ☐ Municipal bonds
- ☒ Treasury bills

Bonds, including municipal bonds, have maturities longer than one year, and are thus not considered money market instruments.

3. a. Which statements are true about Treasury bills (T-bills)?

Check all that apply:

- ☐ Historically, T-bills have consistently paid a risk premium over CDs.
- ☒ Investors buy T-bills at a discount from the stated maturity value.
- ☒ T-bills are the most marketable of all market securities.
- ☒ The income earned on T-bills is exempt from all state and local taxes.

Historically, CDs have consistently paid a risk premium over T-bills, not the opposite.

4. a. \_\_\_\_\_ have maturities up to one year.

- ☒ Treasury bills
- ☐ Treasury notes
- ☐ Treasury bonds
- ☐ Treasuries

Treasury bills have maturities up to one year.

- b. \_\_\_\_\_ have maturities greater than 10 years.

- ☐ Treasury bills
- ☐ Treasury notes
- ☒ Treasury bonds
- ☐ Treasuries

Treasury bonds have maturities greater than 10 years.

5. a. If the state of California issues a bond, it is called a \_\_\_\_\_.

- ☐ corporate bond
- ☒ municipal bond
- ☐ state bond
- ☐ Treasury bond

Bonds issued by states, counties, cities and some other public institutions are called municipal bonds.

- b. Municipal bonds are bonds issued by \_\_\_\_\_.

- ☐ the federal government
- ☐ corporations
- ☒ state and local governments
- ☐ non-profit organizations

Munis are issued by municipalities like states, counties and cities.

6. Your marginal tax rate (federal and state combined) is 27%. The yield to maturity on a corporate bond is 2.6%.

- a. What yield must be offered by an in-state municipal bond to make you indifferent?

Interest from municipal bonds is exempt from federal income taxation and state income taxation in the state in which it was issued, while interest from corporate bonds is taxable:

$$\begin{aligned} r_m &= r(1-t) \\ &= 0.026 * (1-0.27) \\ &= \mathbf{0.01898} \end{aligned}$$

7. a. Which statements are true about common stock?

Check all that apply:

- ☐ Common stock entitles stockholders to receive a dividend every quarter.
- ☒ Common stock is an ownership share in a corporation.
- ☒ Stockholders are the last in line of all those who have a claim on the assets or income of the corporation (residual claim).
- ☒ Stockholders have limited liability: the most they can lose in the event of failure of the corporation is their original investment.

Dividend payments are at the discretion of the board of directors and can be suspended temporarily or indefinitely.

8. a. Preferred stock is like long-term debt since both \_\_\_\_\_, but preferred stock also resembles equity since both \_\_\_\_\_.

- ☐ are tax-deductible expenses for the firm; have no definite maturity date
- ☐ have a finite maturity date; have unlimited upside potential

- ☒ make regular, fixed payments; don't guarantee dividend payments
- ☐ rank above common stock in the priority of claims; grant voting rights to the stockholder

Preferred stock is like long-term debt since both make regular, fixed payments, but preferred stock also resembles equity since both don't guarantee dividend payments (the board of directors can decide not to pay dividends indefinitely) and any dividend payments are not tax-deductible by the firm (unlike interest payments on bonds).

9. a. A market value-weighted index is the \_\_\_\_\_. A good example of a market value-weighted index is the \_\_\_\_\_.

- ☐ average computed by adding the prices of the stocks and dividing by a divisor; Dow Jones Industrial Average
- ☐ simple average of the prices of each stock; Dow Jones Industrial Average
- ☐ simple average of the prices of each stock in an index; S&P 500
- ☐ weighted average of the prices of each stock, with weights proportional to market value; Dow Jones Industrial Average
- ☒ weighted average of the prices of each stock, with weights proportional to market value; S&P 500

A market value-weighted index is calculated as the weighted average of the prices of each component security, with weights proportional to outstanding market value. A good example of a market value-weighted index is the Standard & Poor's Composite 500 (S&P 500).

10. You've collected the following information for three stocks:

	Shares	Price	
Stock	(million)	2021	2022
A	85	146	115
B	116	93	98
C	300	46	57

a. What is the relative change in a price-weighted index? Enter your answer as a decimal number or with the percentage sign.

To find the change in a price-weighted index, we can add up the prices across the three stocks and express the difference between time 0 and time 1 in percentage terms:

	Shares	Price	
Stock	(million)	2021	2022
A	85	146	115
B	116	93	98
C	300	46	57
Total		285	270

Relative change =  $(270 - 285) / 285 = -5.263\% = \mathbf{-0.05263}$

b. What is the relative change in a market value-weighted index? Enter your answer as a decimal number or with the percentage sign.

To find the change in a market value-weighted index, we can calculate the market values for each stock, add up the market values across the three stocks and express the difference between time 0 and time 1 in percentage terms:

$$MV_0 = N * P_0$$

$$MV_1 = N * P_1$$

	Shares	Price		Market value	
Stock	(million)	2021	2022	2021	2022
A	85	146	115	12,410	9,775
B	116	93	98	10,788	11,368
C	300	46	57	13,800	17,100
Total				36,998	38,243

Relative change =  $(38,243 - 36,998) / 36,998 = 3.365\% = \mathbf{0.03365}$

11. A price-weighted index currently stands at 396 and tracks three stocks with the following prices:

Stock	Price
A	24.42
B	60.32
C	114.82

a. If stock A does a 8-for-1 stock split, what must be the new divisor?

After the stock split, the price of stock A will go down:

$$P_A^1 = P_A/R = 24.42/8 = 3.053$$

The divisor must adjust so that the index level stays unaffected:

$$(P_A^1 + P_B + P_C)/d^1 = I_0$$

$$\Leftrightarrow d^1 = (P_A^1 + P_B + P_C)/I_0 = (3.053 + 60.32 + 114.82)/396 = \mathbf{0.45}$$

12. a. A derivative is \_\_\_\_\_.

- ☐ a call option
- ☐ a copy-cat security
- ☐ a piece of work derived from some other piece of work
- ☒ any security whose value is derived from the value of some other asset

A derivative is any security whose value is derived from the value of some other asset. A call option is an example of a derivative, but not all derivatives are call options.

13. a. A company takes out a loan of \$50,000 to buy a new machine. The asset that is created is the \_\_\_\_\_, which is a new \_\_\_\_\_.

- ☒ loan; financial asset
- ☐ loan; real asset
- ☐ machine; financial asset
- ☐ machine; real asset

The loan is a new financial asset for the bank and a liability for the company. The machine will be a new real asset when the company buys it in the future.

b. The company uses the \$50,000 in cash to buy the new machine. The real asset traded is \_\_\_\_\_ and the financial asset traded is \_\_\_\_\_.

- ☐ none; none
- ☐ none; the cash

- ☐ the machine; none
- ☒ the machine; the cash

The machine is a real asset, while cash is a financial asset.

14. a. What are basic classes of financial assets?

Check all that apply:

- ☒ Derivatives
- ☒ Stocks (equities)
- ☒ Bonds (fixed-income securities)
- ☐ Treasuries

Treasuries are a type of fixed-income (debt) security. Fixed income securities pay a fixed amount at fixed intervals over a fixed period. Equities or common stock grants an ownership share in a company, while derivative securities deliver payouts that depend on the price of some underlying asset, such as stocks or commodities.

15. a. Which are functions of financial markets?

Check all that apply:

- ☒ Consumption timing
- ☐ Maturity intermediation
- ☒ Resource allocation
- ☒ Risk allocation
- ☒ Separation of ownership and management

Maturity intermediation is done by financial institutions, such as commercial banks, not financial markets. Financial markets, on the other hand, help savers shift consumption to the future and borrowers shift consumption to the present, allocate capital resources to the companies with the best opportunities, shift risk to investors most willing to bear it, and facilitate the separation of ownership and management by allowing investors to trade their claims with each other.

16. a. Which of the following is a primary market transaction?

- ☐ A pension fund buys 80,000 shares of Facebook stock from another fund with the help of an investment bank.
- ☒ Apple issues one million shares of new stock and sells them to the public with the help of an investment bank.
- ☐ You buy 100 shares of Twitter stock from your friend, exchanging cash for shares.
- ☐ You buy 100 shares of Twitter stock, with your broker routing the order to the NYSE.

In a primary market transaction, a company issues (creates) new securities by selling them to investors for the first time.

17. a. A credit default swap (CDS) is most like \_\_\_\_\_.

- ☐ a call option
- ☐ a share of stock
- ☒ an insurance contract
- ☐ a bond

A credit default swap is similar to an insurance contract or a put option, in the sense that it pays out a pre-specified amount of money to the CDS holder if a certain credit event (default) occurs.

18. a. The valuation of individual securities is called \_\_\_\_\_.

- ☐ asset allocation
- ☐ asset identification
- ☐ portfolio management
- ☒ security analysis

Security analysis is the process of valuing and analyzing of individual securities. Financial managers who do security analysis try to identify undervalued securities to buy and overvalued securities to sell or short-sell. Security analysis is the first step in the investment process, followed by portfolio management.