Foundations of Investments 1st edition Adair Solutions Manual

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Instructor Manual

Adair/Nofsinger Foundations of Investments, 1st Edition;
Chapter 2: Types and Attributes of Financial Instruments

TABLE OF CONTENTS

Purpose and Perspective of the Chapter **2**
Chapter Objectives **2**
Chapter Outline **2**
Additional Resources **21**
List of Formulas 21
List of Excel Formulas 21

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Purpose and Perspective of the Chapter

The purpose of this chapter is to describe some of the wide variety of financial instruments and securities available to investors. The variety ensures that just about any reasonable combination of risk, return, and maturity can be obtained through careful selection amongst the choices covered. The chapter covered how stocks are issued and the role of investment bankers. Then it goes into detail of equity securities, debt securities, money market instruments, derivative instruments, and foreign exchange instruments.

Chapter Objectives

The following objectives are addressed in this chapter:

02.01 Identify the differences between financial instruments and securities.
02.02 Compare and contrast primary market transactions and secondary market transactions.
02.03 Detail the division of capital, risk, return, and control imposed on a firm by a mixture of different types of primary market issues.
02.04 Define the allocation of risk, return, and control created by primary market equity issues.
02.05 Explain the impact of bond maturity on bond interest rates.
02.06 Define the allocation of risk, return, and control created by primary market debt issues.
02.07 Compare and contrast the different types of money market instruments.
02.08 Explain the difference between futures contracts and options.
02.09 Define and explain how foreign exchange instruments are used by investors.

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Chapter Outline

The following outline organizes activities (including any existing discussion questions in PowerPoints or other supplements) and assessments by chapter (and therefore by topic), so that you can see how all the content relates to the topics covered in the text.

I. Financial instrument vs financial security
   a. Financial instrument (02.01, PPT Slide 4)
      i. A *financial instrument* is a contract that generates a financial asset.
      ii. Examples are stocks, bonds, money markets, and derivatives.
   b. Financial security

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i. A financial security is a financial instrument that is created to be publicly traded.
ii. Examples are equity securities and debt securities.

II. Primary vs secondary markets
   a. *Primary markets* are where a security is sold for the first time from an investment banker for the company.
   b. *Secondary markets* are transactions between investors.
   c. A security is issued on the primary market and then traded in the secondary market.

III. Direct investment
   a. An investor provides capital directly to the company in a *direct investment*.
   b. Private placements are a type of direct investment where securities are sold in nonpublic markets, even if they could have been sold in the public markets and may one day be moved to the public markets.
      i. Usually only wealthy individuals are in these markets.
      ii. Private equity and debt markets are not regulated by the Securities and Exchange Commission (SEC). Buyers are expected to do their own due diligence. It is assumed that investors in this market have the means to do that review and can take on that risk.
      iii. Sometimes companies sell the entire issue of stocks or bonds to a financial institution, such as a hedge fund or private equity firm. This is called a *private placement* as well.
   c. *Venture capitalists* are individuals or small groups that invest in smaller, emerging companies. These companies are too small to offer their securities on the public market, but need additional outside funds to grow the business.
      i. One example of this can be seen in the TV show *Shark Tank,* where people with new or emerging businesses present their idea and their growth plans in the hopes of having one more individual venture capitalists invest in their company.
      ii. Often venture capitalist retain a substantial portion of the ownership of the company, sometimes over 50%, so that they have control of the risk they are taking by investing in a smaller, unproven company.

IV. Publicly traded securities
   a. These securities are regulated by the SEC, which:
      i. Provides regulations on trades.
      ii. Sets rules for documentation of trades.

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iii. States rights of owners.
iv. Provides much of the due diligence for these transactions.
v. Does not guarantee return nor state that stocks are worthy of investment. The SEC strives to ensure transparency so that investors are informed.

b. Primary markets for public firms
   i. A primary market is when a company wants to issue new stocks or bonds. A company can offer new stocks or bonds whenever it needs a large amount of cash for growth. In other words, companies can have different classes of stocks, such as stock A class issued in 2000, stock B class issued in 2010, and so forth.
   ii. The very first time a company issues stock, it is called an *initial public offering* or *IPO*.

c. Process of issuing stock
   i. Companies hire underwriters to advise them on their stock issue and to help with the sale of their stock.
      1. Underwriters gauge the market interest in the company's stock.
      2. Some large underwriting companies are Goldman, JP Morgan, and Merrill Lynch.
      3. Underwriters assess the risk involved with that company's stock.
      4. Underwriters ensure that all of the stocks issued are sold. They have contacts with institutional investors, who often purchase newly issued stock.
      5. Underwriters determine the share price when it is issued.
      6. The lead or primary underwriting firm manages a group of brokerage houses to help sell the securities. This group is called a *syndicate*. Forming a syndicate can help in selling the securities, as the group would have more potential buyers.
   ii. There are two main types of arrangements between the issuing company and the underwriter.
      1. Best-efforts agreement
         a. In this case, the investment banker will do their best to sell the securities. They do not guarantee that a set amount of money will be raised.
         b. With this arrangement, the issuing company runs the risk that insufficient funds will be raised. If the investment bank does its best and the stock sells

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for less than the expected value, the company will receive less funds than it had planned.

2. Firm commitment
    a. In this case, the investment banker purchases the securities for a set price. The investment banker will then sell the securities to the market.
    b. With this arrangement, the risk is with the investment banker. Since the issuing company already received funds from the investment banker, if the stock sells for less than expected, the investment banker would make less money than expected and maybe even lose money.

iii. Setting the stock selling price

1. The investment banker determines the price that the stock will be offered to the market. There are pressures to set the price as accurately as possible, although it is often hard to tell how the market will react to a company's stock, especially within an IPO.
    a. If the price is set too high, it may be hard to sell the stock. If the stock is not sold, the company may not raise sufficient funds.
    b. If the price is set too low, the company will raise fewer funds than was possible if the price had been set closer to market valuation. In this case, the investment banker's reputation of helping companies raise money may suffer.

2. Group Activity (30 minutes)

a. Organize groups of three or four students. One person will play the role of the underwriter, one will be the issuing company, and the other(s) will be investors. The underwriter and issuing company meet to decide what to sell, at what price, and the type of agreement (best offer or firm commitment). The selling item should be a small common item, such as an apple or hat. They write down the price and their agreement.
b. The underwriter describes the selling item to the investors. The investors will offer a price for the item.

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c. Looking at the two prices, the group should determine who would have made money, and why. How did the agreement impact the outcome? What insights did this activity provide students on the underwriting process?

iv. Preliminary prospectus to stock sale
   1. The preliminary prospectus includes information about the securities being registered with the SEC and that they may be offered for sale.
   2. The preliminary prospectus is the initial document and considered to be a draft.
   3. The underwriting will then have a *road show.*
      a. This is a series of sales presentations to potential buyers.
      b. The road show creates interest in the security and improves the probabilities that the entire issue will be sold.
   4. SEC registration includes information about the issuing company, the securities, and how the money raised will be used.
   5. The final prospectus is done after the SEC has approved the registration and the stock is ready for sale. Almost any element can be changed between the draft and the final prospectus. The final prospectus includes the price of the security, the cost of underwriting (called the *underwriting discount*), the expected proceeds to the company, and the most recent financial information.
   6. The stock can then be issued and money raised by the company. An IPO can take about a year, while a subsequent issue of stock can take a few months.

v. Situations unique to an IPO
   1. An IPO is unique, as it is the first time this company has asked the market for money. There is more risk, as it is not known how the market will view this company.
   2. Sometimes, managers and employees are offered the stock first, often at a low price. In this way, they could sell the stock later for a larger return. This is to thank those employees for being with the company from the beginning.
   3. When managers and employees have been offered the stock first, a *lockup* is sometimes imposed. A lockup

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restricts those managers and employees from selling their stock for a set period of time, often 180 days.

4. Example IPO: Bumble. In this case, the shares were sold for $43 in the primary market and then the price rose to $76 in the secondary market. The next day, the stock rose to $84.80, then fell to $75.46 at the end of the day. A few months later, the shares were trading at $30 and then climbed back to $50. This is an example of the volatility that IPOs have.

d. Other topics related to stock issuances
   i. Shelf registrations
      1. If a company is already public and has stocks selling on the market, it is required to file quarterly and annual reports with the SEC.
      2. These companies can also file a registration with the SEC for a new sale of stock. Once approved, the company is not required to immediately issue the stock. A registration with the SEC where the stock has not yet been issued is called a *shelf registration.*
      3. With a shelf registration, once the company decides to issue that stock, the process is much quicker, as the registration is already complete.

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   ii. Direct listing
      1. Also known as a direct public offering, this allows a company along with any of its private equity investors to offer its stock directly to the secondary market.
      2. This avoids the use and cost of an underwriter.
      3. This process cannot be used to create a new issue of shares. Only the shares already owned by the private equity investors and the company can be issued. This limits the amount of funds that can be raised through a direct listing.
   iii. Special purpose acquisition companies (SPACs)
      1. SPACs are a method of taking a company public that can be done more quickly than the traditional process and has fewer reporting requirements to the SEC.
      2. In this process, the SPAC has its own IPO to raise money. Investors in the SPAC know that it does not produce anything but rather is a vehicle to take another company public.

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3. With the money from its IPO, the SPAC finds a private company and purchases it. When the private company is purchased, the SPAC becomes the public version of the previously private company. This takes the private company public.
4. For example, the SPAC VectolQ traded on the market as the ticker VTIQ. Then VectolQ purchased Nikola, a private electric car company. After this purchase, the new public company was traded as the ticker NKLA.
5. Buying the stock of a SPAC is risky. The SPAC purchases companies. Investors in the SPAC hope that the owners of the SPAC can find a company to purchase that will be profitable in the future. The reputation and intent of the SPAC team is important. Some groups have used a SPAC successfully several times over and now have a strong reputation.
6. In 2019, there were 59 SPACs with IPOs. In 2020, there were 248, so this may be a growing trend.

V. Corporate risk, return, and control
   a. Imagine a company being financed entirely with one issuance of stock. These stockholders would have provided all the funding for the company and would, therefore, have all the risk, return, and control of the company. If the company did well, those investors would reap all the rewards. If the company did poorly, those investors would experience all the risk. Those investors would also have all the control to vote who they wanted onto the board of directors and influence primary decisions of the company. Graphically, it would look like this:

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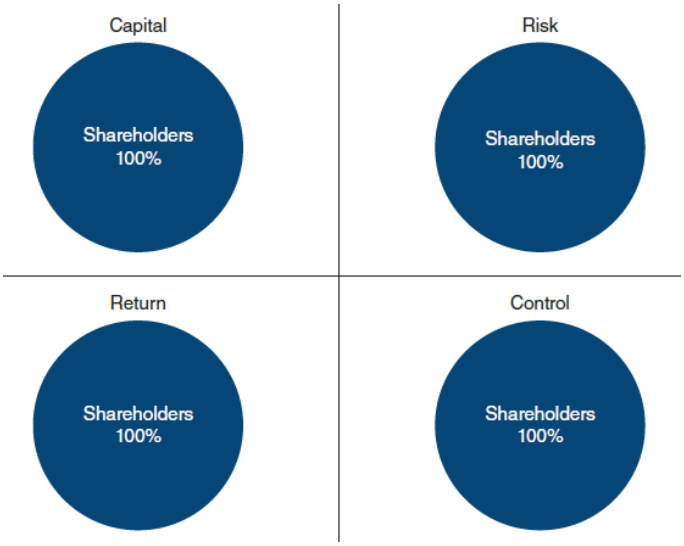
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b. Imagine now that the company has two classes of equity: class A and class B. If both classes provided the company with the same amount of capital, then each company provided 50% of the funding. The company would usually create some differences in the two classes of stock. One class might have more control in exchange for more return or less risk. For example, one class might be common shares, while the other is preferred shares. In this case, the structure might be as shown below, where class B has less risk, less return, and no say in the control of the company.

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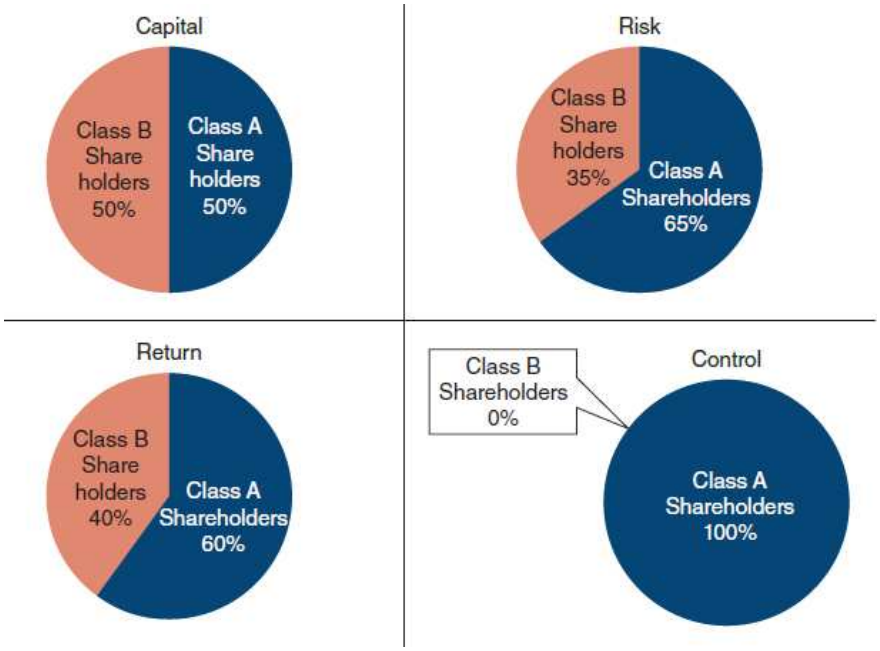
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c. A similar structure would be true if the company received equal funding from equity and from debt. Then the debtholders have less risk and less return. Debtholders may have little or no control of the company. The graphs would look like this:

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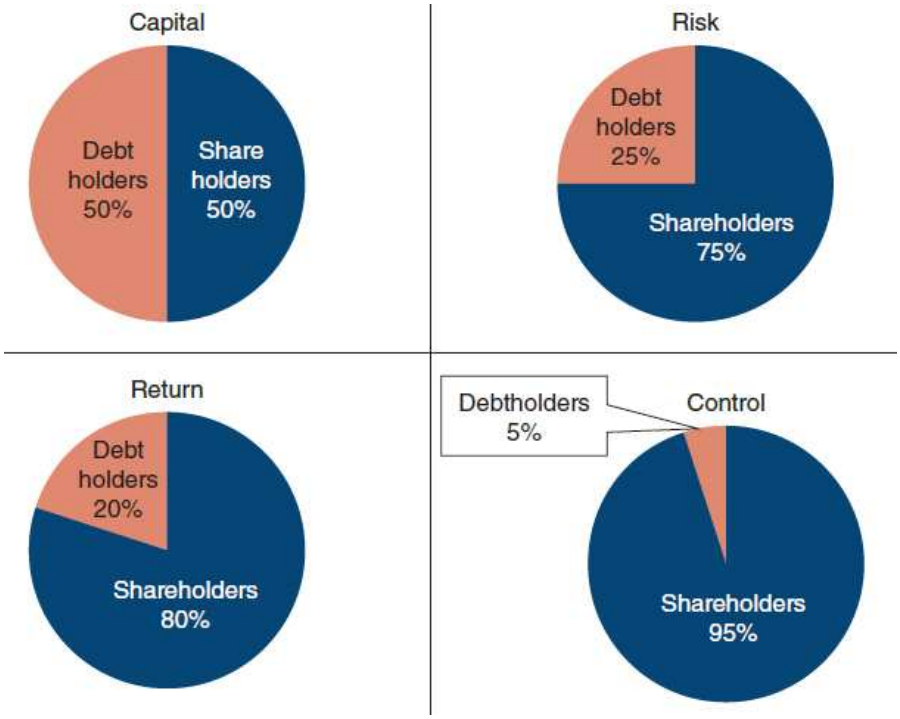
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VI. Secondary market transactions
   a. After the stock is issued and the company receives its funds, the stock can then be traded between investors. These subsequent trades take place in the secondhand market, called the *secondary market*.
   b. The company does not receive any additional funds from the secondary market.
   c. Whoever owns the stock on a specific day is the partial owner of the firm on that day.

VII. Equity securities
   a. Stock, or equity, represents shares of ownership within the company.
   b. Firms may issue common stock or preferred stock.
      i. *Common stock* is what is usually thought of as stock. It has control of the firm, as it votes who will be on the board of directors.
      ii. *Preferred stock* receives dividends before common shares and often those dividends are of fixed amounts. If the company is liquidated, preferred stockholders are paid before common stockholders. However, preferred stockholders generally do not have any control in the firm. They do not vote for the board of directors.

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c. Corporations that issue stock are separate legal entities from their owners. Creditors that are owed money can sue the corporation for their funds, but cannot sue shareholders. The most shareholders can lose is the amount they invested in the corporation. This concept where an investor's financial liability is limited to their investment is called *limited liability.*
d. In private companies, investors do not have limited liability, and creditors could seize the asset of stockholders to be repaid.
e. Shareholder control of the company
    i. As noted, shareholders vote for the members of the board of directors of the company. In this way, the shareholders have control of the company. However, since shareholders can be spread across the globe and might frequently change, the reality is that shareholders rarely hold board members accountable for decisions regarding the company.
    ii. One exception was when shareholders voted to unseat two board members from Exxon to protest the company's inactions regarding climate change.
    iii. In some cases, different classes of shares have different voting rights and, therefore, different levels of control over the company. One class of shares might have 10 votes for each 1 vote of another class of shares. This allows the owners of the first class to retain their control over the company.
    iv. Purchasing shares of stock from the open market is one way that a company might try to take over another company. If enough shares are purchased to have control of the target company, the entire board of directors can be removed and replaced with new management. This would be a corporate takeover and can take a variety of forms.
f. Shareholder return
    i. Return to shareholders is done either through dividends or by an increase in the value (or price) of the stock.
    ii. When the company has a profit, they can either pay out all or part of those profits in dividends to the shareholders and reinvest the remaining profits back into the company through new projects, expansions, or other opportunities.
    iii. If dividends are paid, then they are equally paid to all shareholders of each class.
    iv. If earnings are reinvested, the company is worth more, and each shareholder's stock value is worth more due to that

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reinvestment. However, the percentage ownership of each shareholder remains the same. In other words, if a shareholder owned 2% of a company worth $100 million and then the company reinvested $1 million in earnings, the shareholder would now own 2% of a $101 million company. The dollar value of their ownership would have increased while the percentage remained the same.

g. Shareholder risk
    i. While shareholders can only lose as much as they have invested, their gains can fluctuate.
    ii. As the company's earnings increase and decrease, dividends and company growth may fluctuate over time, creating the risk for shareholders.
    iii. If the company goes into bankruptcy, all creditors must be paid. Any funds left over go to the shareholders, although often there are no funds left over.

VIII. Fixed-income securities
a. *Fixed-income securities* are those that include fixed-income cash flows, such as bonds, preferred stocks, and others.
b. These are also called *debt securities*, where the investor is lending money to the company. The debt securities represent a claim on the company assets in case the interest or principal payments cannot be made.
c. The debt instrument will have a set maturity date, principal amount, and set coupon rate, or interest rate. Since all these are set, the value and return on the bond for the investor is determined by the price of the bond on the open market.
d. Issuers of fixed-income securities
    i. Local, county, state, and federal governments can issue bonds, which would be called municipal bonds. These are often called *munis*. Munis have lower default risk, as it is unlikely that a government will go bankrupt, as it can raise taxes to pay the interest payments on its bonds. The federal government can even print more money to pay their bonds. The interest paid to investors from munis is tax-deductible to the investor.
    ii. Most bonds are issued by large corporations.
e. Interest and maturity
    i. Bond issuers must pay the interest on these debt obligations. While dividends are paid from earnings, interest payments on bonds are an expense to the company.

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ii. The interest payments on bonds are determined by the coupon rate for that bond. The coupon rate generally does not change throughout the life of the bond.
iii. *Maturity* is the time at which the principal amount must be paid back to the bondholder. Generally, the longer the maturity, the higher the return expected on the bond.
iv. The yield is the return the investor receives by owning the bond. Yield can be determined in several different ways.
    1. *Yield to maturity* is the estimated annual rate of return for a bond, assuming that the investor holds the asset until its maturity date.
    2. Rates can be confusing as they relate to bonds. The *coupon rate* is a fixed rate paid on the bond. The interest rates are within the economy and impact the price of a bond. *Yields* are the return on the bond due to the coupon payments, the price paid for the bond, and the price received on the bond when it is sold.
    3. *Current yield* is the annual interest payments divided by the current price of the bond.

$$\text{current yield} = \frac{\text{annual interest payments}}{\text{current price of the bond}}$$

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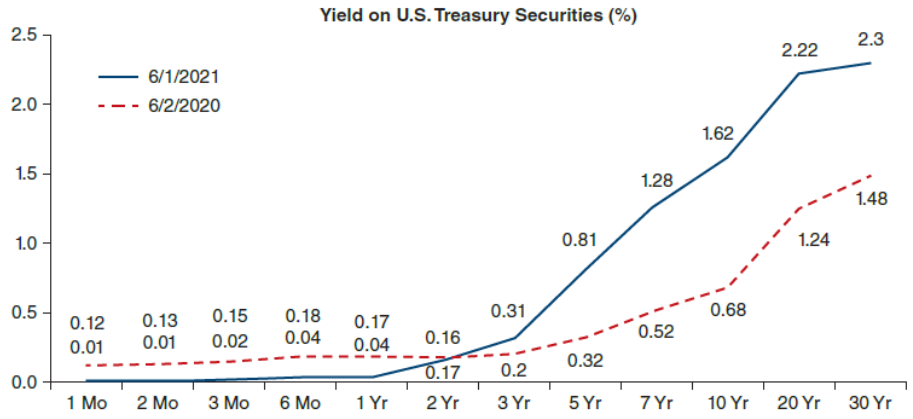
    4. As noted, the longer the time to maturity, generally the higher the return or yield. With a longer maturity, the investor is being asked to lend the company money for a long period of time. Since the investor would face a risk in investing their money over the long term, the investor is likely to demand a higher return. This relationship is shown through the *yield curve*. The yield curve for U.S. Treasury securities is shown below for June 2020 and June 2021. Treasury securities with a maturity of 1 or 2 months offered a much lower yield than those with a 20- or 30-year maturity.

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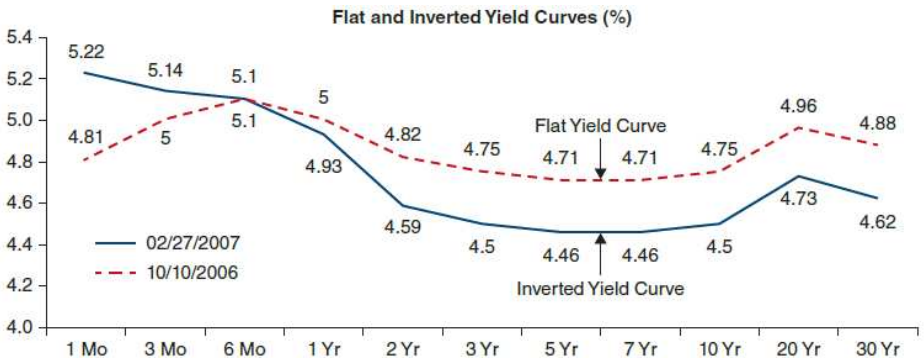
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5. There have been times when the yield curve was flat, or inverted, indicating that the expected relationship between maturity and yield did not hold. This could be seen in 2006 and 2007, as shown below.



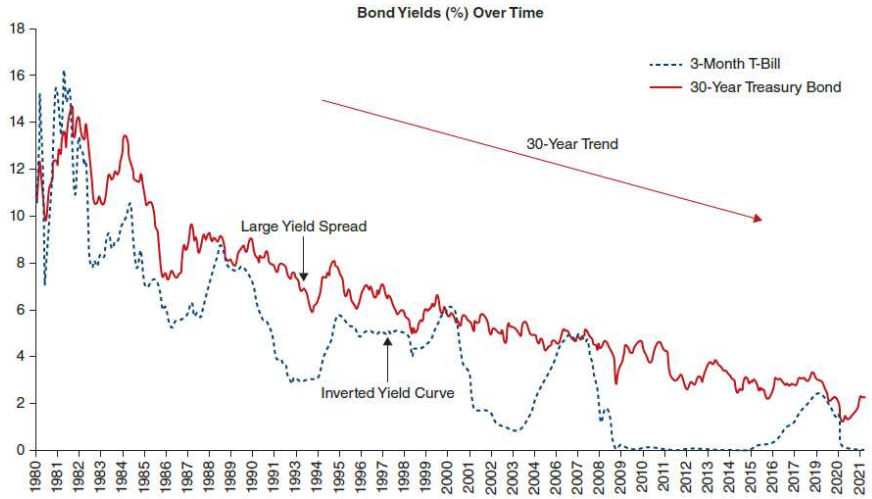
6. Another key relationship with yields is that short-term yields tend to be more volatile than longer-term yields. The same is true of interest rates, in general. The yield spread is the difference between long-term Treasury bond yields and short-term Treasury bill yields. Over the past 30 years, both yields have generally declined.

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7. **Discussion Activity (20 minutes)**
    a. Look up yields of different bonds online. What trends do you notice over time? Compare the yields of two different bonds. Why do you think they are different?

f. The *indenture*
    i. This is the legal agreement that the debtor must meet. The debtor would be the company or organization borrowing the funds by issuing the bond. It is the bond issuer. For publicly held bond issues, these are filed with the SEC.
    ii. The indenture states the coupon rate, maturity date, face value, and any other conditions required of the debtor. While there are many conditions that could be placed in the indenture, a few are noted below.
        1. One condition might be collateral, such as a house on a mortgage loan.
        2. The indenture could place a limit on paying dividends. Paying dividends removes money from the company and debtors sometimes see dividends as increasing the risk that the company will not be able to make their coupon payments in future years.
        3. A limit could be placed on how much additional debt the issuer can obtain. Additional debt can make any current debt riskier.

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4. There could be limits on how much the issuer can change the nature of their business, such as merging with another company.
5. The indenture can also state that if the issuer defaults on any debt, then all debt must be considered in default.

g. The role of the trustee
   i. The *trustee* is an agent appointed to act in the interest of bondholders.
   ii. It is the trustee that ensures that all the terms of the indenture are upheld and takes action if there are concerns.
   iii. Trustees are usually commercial banks.

h. Forms of debt
   i. With a *registered bond,* the owner of the bond is registered with the trustee and receives the interest payments. When the bond is sold, it is then registered in the name of the new owner.
   ii. With a *bearer bond,* possession of the bond represents ownership. This is similar to a dollar bill, where ownership is only based on having the dollar bill, rather than a list somewhere that notes someone as the owner of that dollar bill. Bearer bonds, like cash, are transferred by transferring ownership.
   iii. The federal government no longer allows companies to issue bearer bonds; they have been used to evade taxes stemming from a lack of documentation.

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i. Bondholder control
   i. Under normal, positive operations, bondholders have little or no control of the company.
   ii. If the company experiences financial distress, then the bondholders can impose control through the indenture and a covenant or term of the indenture agreement.

j. Bondholder return
   i. The return on a bond is based on the coupon payments and the maturity value. If sold before maturity, then the return is also based on the market price received in the sale.
   ii. Some bonds pay all interest payments at the time of maturity. These are called *zero coupon bonds,* as they don't make regular coupon payments. Zero coupon bonds are only issued governments or strong corporations that are likely to remain in business until maturity.

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iii. Smaller or financially weak companies sometimes offer creditors possible dividends as well as interest payments. These are called *participating bonds.*

k. Bondholder risk
   i. In general, bondholders have less risk than stockholders, as receipt of the coupon payments is more certain than dividend payments.
   ii. Bondholder risk comes from a variety of sources, such as default risk, interest rate risk, inflation risk, and risk that the bond will be retired (paid before maturity date).
      1. *Default risk* is the risk that the company will go out of business and, therefore, not be able to pay their bonds. To help mitigate the impact of default risk, several companies provide a default risk rating for bonds. These bond ratings help investors understand the default risk with minimal research on their own. The three largest companies to provide bond rates are Moody's, Fitch, and S&P.
      2. The bond ratings from these three use slightly different scales and may have somewhat different opinions about the default risk of any specific company. Here are the ratings used by these companies.

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Moody's	S&P's	Fitch	Rating descriptions	
Aaa	AAA	AAA	Prime	Investment grade
Aa1	AA+	AA+	High grade	
Aa2	AA	AA		
Aa3	AA−	AA−		
A1	A+	A+	Upper medium grade	
A2	A	A		
A3	A−	A−		
Baa1	BBB+	BBB+	Lower medium grade	
Baa2	BBB	BBB		
Baa3	BBB−	BBB−		
Ba1	BB+	BB+	Noninvestment grade, speculative	Noninvestment grade (high-yield bonds, junk bonds)
Ba2	BB	BB		
Ba3	BB−	BB−		
B1	B+	B+	Highly speculative	
B2	B	B		
B3	B−	B−		
Caa1	CCC+	CCC	Substantial risks	
Caa2	CCC		Extremely speculative	
Caa3	CCC−		Default imminent with little prospect for recovery	
Ca	CC			
	C			
C	D	DDD	In default	
/		DD		
		D		

      3. These rating are important to the bond-issuing companies as well. If their bonds are rated too low, then some

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institutional investors will not purchase them, making it harder for the company to raise money in the future through bonds.

4. *Interest rate risk* reflects the fact that the prices of bonds change in response to changes in interest rates. If interest rates rise, the prices of bonds will fall. If interest rate decline, the prices of bonds will increase.
5. *Inflation risk* reflects purchasing power risk, the chance that future cash flows won't be worth as much because of inflation. The issuers will pay the same coupon payment regardless of the inflation rate. When inflation rises, those coupon payments will purchase less for the bondholder than before.
6. If the bond is making interest payments in a foreign currency, then the bondholder will also have foreign exchange rate risk.

IX. Money market instruments
   a. These are short-term debt securities that trade in liquid markets.
   b. They are short-term securities, so they have low risk and lower return than most other investment opportunities.
   c. They can be considered as alternatives for a savings and time deposits at banks.
   d. They are issued in large denominations ($100,000 or more) by large corporations, institutional investors, or governments.
   e. Examples of money market instruments include:
      i. Treasury bills from the U.S. federal government, with maturities of less than 1 year
      ii. A *repurchase agreement* is the sale of a security in which the seller agrees to buy back (repurchase) the security at a specified price on a specific date in the future.
      iii. Negotiable or jumbo certificates of deposit (CDs) are issued by commercial banks. These are issued in $100,000 units. Some jumbo CDs are issued in eurodollars.
      iv. *Commercial paper* is a short-term debt issued by a corporation that matures in 270 days or less. Companies must have excellent ratings to issue commercial paper.
      v. *Banker's acceptances* are issued by a corporation but guaranteed by a bank. These are used when companies ship goods abroad and receive payment in the short-term future. The company can

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get its money now by taking the promise to a commercial bank who accepts it, and then trade it on the open market.

vi. *Tax anticipation notes* are debts issued by states or municipalities to be repaid from future tax revenues. These allow the governments to have access to funds throughout the year and pay the debt when taxes have been collected.

f. Yields on money market instruments

i. Money market funds have returns that mirror short-term interest rates.

ii. They are considered one of the safest investments, as they are issued by governments and large corporations.

iii. In 2008, when Lehman Brothers went bankrupt, it defaulted on its commercial paper, causing a rush on withdrawals from money market funds. The federal government provided guarantees to support the market. This action supported the money market in a manner similar to how the Federal Deposit Insurance Corporation (FDIC) provides a guarantee to bank deposits in member banks.

X. Financial derivative instruments

a. The value of a financial derivative is based on the value of something else. When the value of the underlying asset changes, then the value of the derivative changes as well.

b. The underlying asset can be stocks, bonds, currency exchange rates, commodity prices (like corn, gold), and interest rates.

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c. Futures contracts

i. A *futures contract* is a binding agreement to buy or sell an asset, such as a commodity, in the future. The buyer of a futures contract agrees to accept a specific amount of the asset in a specified month. The seller of the contract agrees to deliver that amount during the specific month.

ii. Investors in the futures market who do not want to deal with the actual asset or commodity are called *speculators*. Those who want to deal in the asset or commodity are growers, processors, warehouses, etc.

iii. Individuals can purchase commodity futures through brokers who act on their behalf on the commodities exchange. The futures contract is actually between the investor and the exchange.

iv. When the contract matures, the exchange matches up the buyers and sellers to facilitate the actual commodities exchange.

v. Investors can enter into a futures contract by putting up a set amount of cash in advance, called *margin,* to ensure that they

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will hold up their part of the agreement. Margin can be quite small, allowing for large profits or potential 100% losses of this margin.

d. Options
   i. An *option* is the nonbinding right to buy or sell a stock at a set price for a specified length of time. This is the right to buy or sell the stock. If an investor does not exercise that option, it will expire, and the entire price of the option will be lost.
   ii. Options will be exercised only if they make the investor money. For example, if an option allowed an investor to purchase a stock for $12, but the stock is selling on the market for $10, the investor will not exercise the option. However, if that stock is selling for $14 on the market, the investor exercises the option by purchasing the stock for $12 and then sells it on the market for $14, making a profit.

XI. Foreign exchange instruments
   a. These are contracts involving the exchange of one currency for another. Their value is based on the exchange rate of the two currencies involved.
   b. These instruments could be futures, options, or other contracts based on the currencies.
   c. The foreign exchange market is the largest market in the world.

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[return to top]

ADDITIONAL RESOURCES

LIST OF FORMULAS

$$\text{current yield} = \frac{\text{annual interest payments}}{\text{current price of the bond}}$$

LIST OF EXCEL FORMULAS

[return to top]

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Solution and Answer Guide

Adair/Nofsinger, Foundations of Investments, 1e, Chapter 02: Types and Attributes of Financial Instruments

Table of Contents

Questions 2

Case Study 7

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Questions

1. **Instruments vs. Securities.** What are the fundamental differences between financial instruments and securities? (LO 2-1)

   Answer:

   A financial instrument is a contract that generates a financial asset to one of the parties involved, and an equity claim or financial liability to the other party. Equity-based financial instruments represent ownership of an asset, while debt-based financial instruments represent a loan made by an investor to the borrower, which could be a company or government.

   All financial instruments can technically be traded, but those that are created with the specific intention of being publicly traded are called *securities*. Most financial instruments fall into one or more of the following five categories: equity securities, debt securities, money market instruments, derivative instruments, and foreign exchange instruments.

   The Securities and Exchange Commission (SEC) heavily regulates publicly traded securities, but other types of financial instruments are less heavily regulated.

2. **Primary vs. Secondary Market Transactions.** Why do we differentiate between primary and secondary market transactions? (LO 2-2)

   Answer:

   When a company publicly sells new stocks and bonds for the first time, it does so in the primary capital market. This market is also called the new issues market. In many cases, the new issue takes the form of an initial public offering (IPO).

   The secondary market is where securities are traded after the company has sold its offering on the primary market. It is also referred to as the stock market. The New York Stock Exchange (NYSE), London Stock Exchange, and Nasdaq are secondary markets. Small investors have a much better chance of trading securities on the secondary market since they are excluded from IPOs. Anyone can purchase securities on the secondary market as long as they are willing to pay the asking price per share.

3. **Division of Capital, Risk, Return, and Control.** Explain why bondholders are willing to accept a lower rate of return than stockholders in the same firm. (LO 2-3)

   Answer:

   Bondholders have priority on income and priority on assets over the stockholders in a firm.

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When a firm is solvent, the contractually obligated ordering of payout precedence that controlling shareholders have granted to the other classes/types of capital providers dictates that every period, debtholders get paid their promised payments first, then preferred shareholders, then common shareholders. As a result, you will often hear common shareholders referred to as "residual claimants," in that they get paid out of whatever is left over after all the other capital providers get their promised payments.

Even if the firm becomes insolvent and goes into bankruptcy, the same general ordering or precedence in payouts holds true from the sale of the assets of the firm. Shareholders will get paid (assuming there is any money left for them) after all other claimants—including fees owed to bankruptcy lawyers, taxes due to federal and state governments, debtholders, etc.—are paid.

Because of this priority on income and assets that bondholders enjoy, the risk that bondholders bear is lower compared to the stockholders in the same firm. Therefore, bondholders would accept a lower rate of return than stockholders in the same firm.

4. **Division of Capital, Risk, Return, and Control.** Explain why equity ownership (stocks) is often much more valuable than debt ownership (bonds) in public corporations. (LO 2-3)

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Answer:

The only returns that bondholders receive are those that they were promised when the bond was first issued by the company, which are the stated coupon rate paid in periodic interest payments and the bond's maturity value paid at the end of its life. Therefore, the bondholders do not receive anything when a company's profitability and earnings increases.

Equity ownership provides limited liability to the stockholders. In addition, stockholders receive all the benefits when a firm grows and prospers, and its earnings and profitability increases. As long as the firm prospers, it may be able to pay dividends and grow; this growth would lead to increases in the stock price, which would generate capital gains in case the stockholder sold the shares. Of course, the stockholders bear the risk of the firm having negative earnings and not growing also.

Overall, the reason why equity ownership is considered to be more valuable than debt ownership is because equity owners benefit from the profitability of the firm, while debt owners get only what their debt contract specifies.

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5. **Primary Market Equity Issue.** What effect does a primary market equity issue have on the firm? What is this used for? (LO 2-4)

   Answer:

   Primary market equity issue is the sale of new stocks by a firm to raise capital. Issuing new stock provides capital to the firm, which will be used to make investments in assets that will in turn increase production and profitability of the firm. However, when firms issue new equity, there is a dilution of earnings because there will be more shares outstanding and the company's earnings will be divided among larger number of shareholders. Of course, the firm expects that the investments made by the capital provided by the issuance of new equity will increase the earnings so that the impact of this dilution is minimal.

6. **Bond Rates and Maturity.** If you have two bonds of different maturities issued by the same firm, which would you expect to have a higher coupon rate? Why? (LO 2-5)

   Answer:

   When a fixed-income debt instrument such as a bond is issued, the rate of interest to be paid by the borrower is established. This rate is frequently referred to as the *bond's coupon rate*. The coupon rate is usually fixed over the lifetime of the bond. The issuer of the bond usually matches the going market rate for similar bonds with similar risk characteristics when establishing the coupon rate on the bond. In general, there is no particular relationship between the coupon rate and bonds with different maturities. If two bonds of different maturities were issued by the same firm, the only reason one would have a higher coupon rate than the other is that they were issued at different times. Because the prevailing interest rates in the market were different, the coupon rates chosen were different.

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   However, the yield to maturity—which is the yield that the investor will earn if the debt instrument is held from the moment of purchase until it is redeemed at par (face value) at the maturity date—is in general higher as the maturity of the bond increases. The general relationship between the yield to maturity and the bond maturity is the longer the term to maturity, the higher the yield.

7. **Primary Market Debt Retirement.** Under what condition would a firm decide to retire some of its outstanding debt early? (LO 2-6)

   Answer:

   A callable bond is a type of bond that can be retired early by the issuer, before its maturity date, if it is in the best interest of the issuer to do so. In general, when a company has a callable bond issue with a high coupon rate and the current market rates are much lower, they will be better off retiring those bonds and borrowing at

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the lower rates that exist in the market. Since the call feature is not in the best interest of the bondholder, the issuer usually pays a call premium above the par value when retiring the bond early.

8. **Money Market Instruments.** Why are money market instruments called that? (LO 2-7)

   Answer:

   Money market instruments are highly marketable short-term debt securities. Due to the shortness of their term as well as the relative strength of the firms that issue them, money market instruments are generally low-risk investments and generally seen as providing investors with an alternative to savings and time deposits offered by banks. Because of this, they tend to offer lower yields than either stocks or debt securities.

   Many money market instruments trade in large denominations among institutional investors. However, some money market instruments are available to individual investors via money market funds. Money market instruments include Treasury bills (T-bills), repurchase agreements (commonly referred to as *repos*), certificates of deposit (CDs), commercial paper issued by corporations, bankers' acceptances, and tax anticipation notes.

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   Because money market instruments are short term, highly liquid, and relatively very safe, they are considered to be equivalent to cash. Because they can become cash quickly, the have been given the name *money market instruments*.

9. **Futures vs. Options.** What are the differences between futures contracts and options? (LO 2-8)

   Answer:

   A futures contract is a formal agreement between a buyer or seller and a commodity exchange. In the case of a purchase contract, the buyer agrees to accept a specific commodity that meets a specified quality in a specified month. In the case of a sale, the seller agrees to deliver the specified commodity during the designated month. Although a futures contract appears to involve a buyer and a seller, the actual contract is made between the individual and the exchange. If an individual buys a contract, the exchange guarantees the delivery (the sale). If an individual sells a contract, the exchange guarantees to take delivery (the purchase). If one of the parties were to default (e.g., the buyer), the seller's contract is upheld by the exchange. Note that in a futures contract, both parties have the obligation to perform the terms of the contract at maturity.

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An *option contract* is the right to perform something but not the obligation, and that is the major difference between the options contract and a futures contract. An option is the right to buy or sell stock at a specified price within a specified time period. The value of an option is derived from (i.e., depends on) the underlying security for which the option is a right to buy or sell. Options take various forms, including calls, puts, and warrants. The holder of the option contract will only exercise the option if it is profitable and will let the contract expire unexercised if it is not profitable.

10. **Foreign Exchange Instruments.** Explain how a foreign exchange instrument could be used by an investor to hedge currency risk. (LO 2-9)

    Answer:

    Currency risk can be hedged by foreign exchange futures contracts. These are the two scenarios where an investor can use currency futures to hedge for currency risk.

    Suppose a U.S. investor has an obligation to pay a large sum of money in euros in six months and would like to hedge for the currency risk. This investor can buy a futures contract on euros, which allows them to buy the euros in six months at a price that is determined in the futures contract today. Therefore, the investor hedges the currency risk by entering the long position in the futures contract. The investor does not need to worry about what will happen to the exchange rate of the euro relative to the dollar, as they already locked in the price of the euro with the futures contract.

    Similarly, suppose a U.S. investor expects to receive a large sum of money from Europe in six months and would like to hedge for the currency risk. This investor can sell a futures contract on euros, which allows them to sell the euros in six months at the price that has been determined in the futures contract today. Therefore, the investor hedges the currency risk by entering the short position in the futures contract. The investor does not need to worry about what will happen to the exchange rate of the euro relative to the dollar, as they already locked in the price of the euro with the futures contract.

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Case Study

Identify a publicly traded corporation that has at least two different classes of equity and investigate the firm to answer the following questions:

a. How do the different classes vary in terms of risk, return, and control?
b. Which class of shares was the "original" type of shares? Why do you think the other classes were issued?
c. Identify bond issues by the firm. What are the coupon rates, maturity dates, and credit ratings of those bonds?
d. Are options traded on this stock? What are the characteristics of these options?

Alphabet Inc., which is the name of the company known more widely as Google, has two different classes of equity listed: class A shares and class C shares.

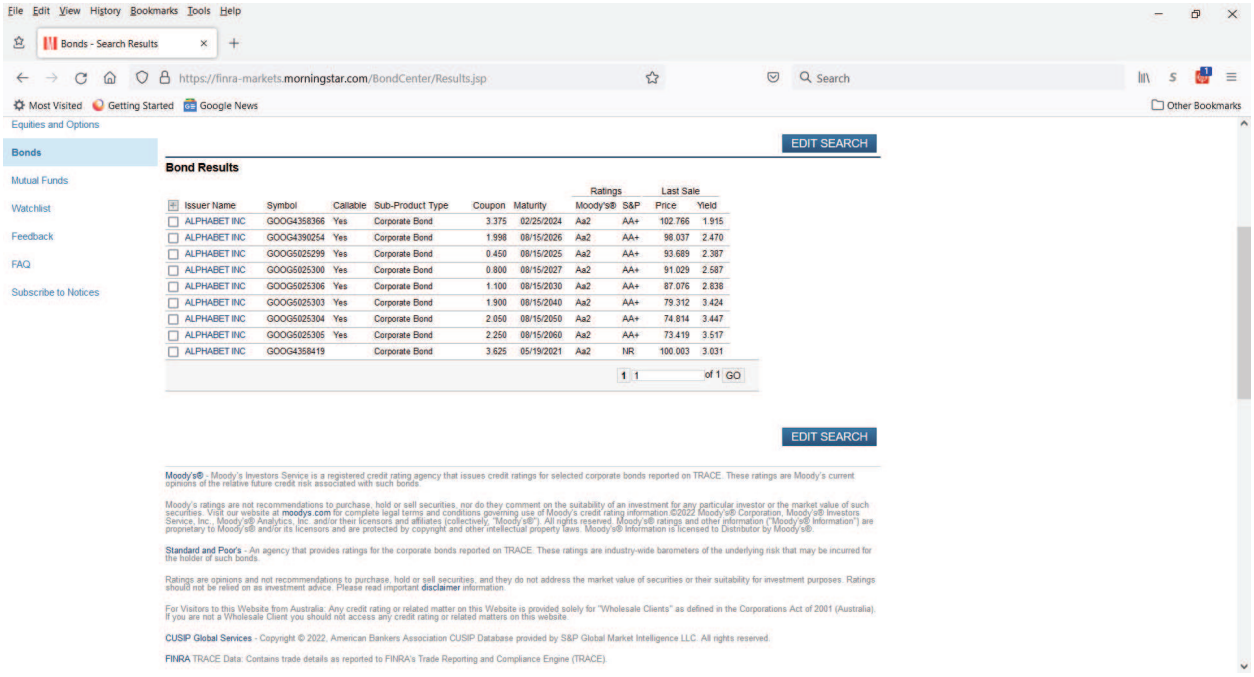
(In fact, they have three different classes of equity, as they also have class B shares. However, these shares are not tradeable and are only held by the founders or insiders.)

a. Alphabet Inc. shares are listed on NASDAQ under the ticker symbol GOOGL and GOOG. GOOGL is the class A shares, while GOOG is the class C shares. Class A shares have one voting right per share, while class C shares do not have any voting rights. Therefore, owners of class C shares cannot vote, and thus have no control over the firm. Only class A share owners have voting rights and have control over the firm.
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As for the risk, both shares have the same risk, as both shares are affected by the profitability and earning potential of the same company. In fact, on March 15, 2022, class A shares (GOOGL) were trading for $2,583.96, while class C shares (GOOG) were trading for $2,593.21.
b. The original class of shares was class A. In 2014, the company issued class C shares (with no voting rights). The main reason for this was that the founders of the company wanted to keep control of the company, including the strategic direction.
c. The FINRA website (**https://finra-markets.morningstar.com/BondCenter/Default.jsp**) includes a search tool that will produce a list of a company's outstanding bonds. Alphabet Inc.'s outstanding bonds are listed below. Coupon rates, maturity dates, and credit ratings of those different issues of bonds appear in the screenshot.
Note also that the last row in the table shows a bond issue that has already matured (on 5/19/2021). The data also give the price of each bond issue as well as the yield to maturity.

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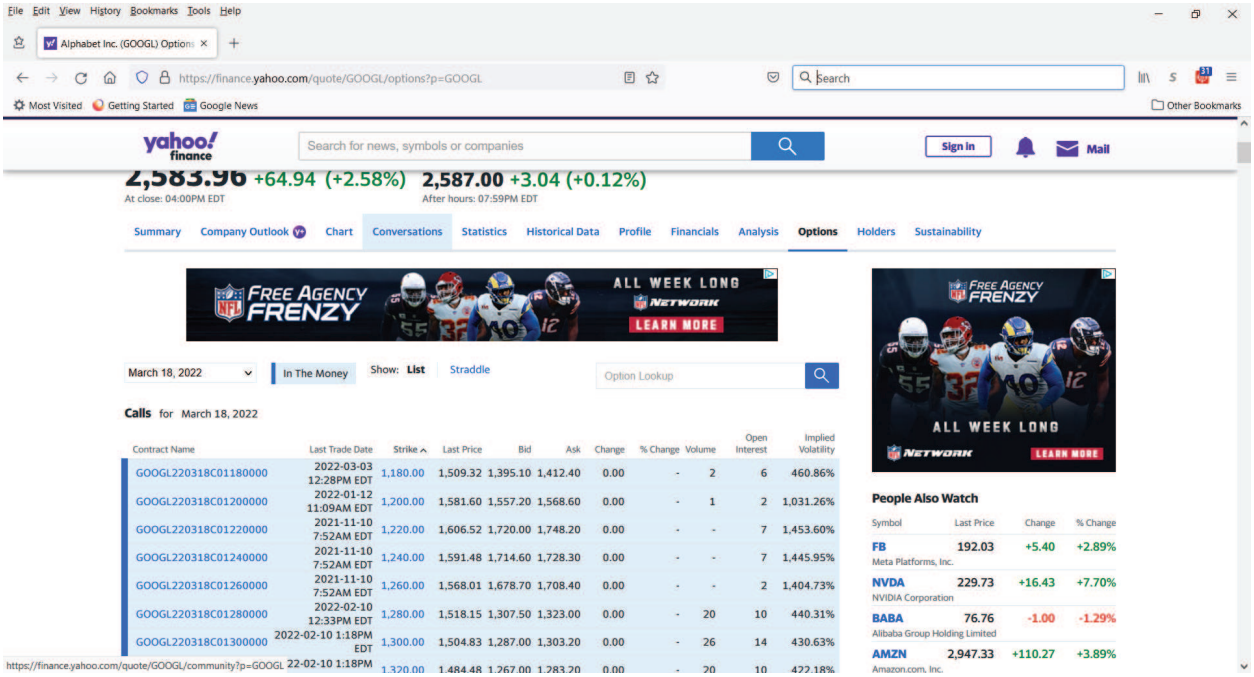
As an example, you can click on the first bond issue to get more detailed information. This issue has a particular symbol, GOOG4358366, as well as a particular Committee on Uniform Securities Identification Procedures (CUSIP) ID, 02079KAB3. It has a maturity date of 02/25/2024, its coupon rate is 3.375%, and the frequency of the coupon payments is semi-annual. The bond is investment grade: it has a AA+ rating by S&P and an Aa2 rating by Moody's. It is callable; its last traded price is $102.77 of par, with par value of $1,000. So, the last traded price in actual dollars is $1,027.70.

d. To find options data, use any of the websites listed in the textbook (such as Yahoo! Finance). The screenshot below shows the options chains for Alphabet Inc., class A shares GOOGL. There are options on the class C shares, too. Options are created by an exchange, not by the company. The exchange creates different options depending on the demand for those options. In the case of Alphabet, there are call options and put options, with weekly expirations and numerous strike prices. There are options expiring on Friday 18 March, Friday 1 April, etc. Option contracts, whether they are calls or puts, are created for 100 of the underlying security. So, in the case of calls and put contracts on Alphabet Inc., the call option gives the right to buy 100 of the underlying shares, while the put option gives the right to sell 100 of the underlying shares. The strike price of the option is the price at which you can either buy or sell the underlying shares. As you can see in the listings from Yahoo!, the Alphabet Inc. options have strike prices that vary by different increments, such as $50, $20, $10. or $5. Again, the exchange creates those option chains depending on the popularity of a particular stock and its demand.

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