14.1: Solutions to CH 1 Exercises

SolutionsSolutions

Question 1

A corporation is a type of business organization that separates the management and ownership of the business. Ownership of the corporation is based on owning stock (or equity) in the firm. Owners have a right to the income that the business generates, a claim against the assets of the business (secondary to creditors), and then hire (through a board of directors) a management team to operate the business and make the strategic decisions. An example would be Ford. If you buy 100 shares of Ford, you are a part owner of the firm but you are not involved in the process of running the business. Because of this separation between ownership and management, there are some unique characteristics of a corporation.

Limited Liability – Owners' losses are limited to their initial investment. If you invest $1000 into Ford stock, that is the most you can lose. Even if the firm goes bankrupt and cannot pay all of its bills, your investment may become worthless but you will not owe additional money.

Double Taxation – Because the owners and the business are separated legally, they are separated in the eyes of the tax code as well. This means the business is taxed on its income (corporate income tax) and then owners are taxed on any profits they earn on their investments into the corporation (dividends and capital gains taxes).

There are several other forms of business organization (sole proprietorships, partnerships, etc.) and many other technical legal issues related to business organization but these are beyond the scope of our class. We will focus on the basic corporate form of organization for the purpose of this class.

Question 2

The concepts of Limited Liability and Double Taxation are explained in the previous answer. In addition to understanding the concepts, it is important to understand their impact on investors and the corporation. Limited liability is critical due to the separation of ownership and decision-making. Not many investors would be willing to supply capital to the firm if they were not part of the decision-making process AND could be held liable for all of the firm's actions. Consider a situation where you invest in restaurant chain by buying 100 shares of stock for $20. You are investing $2000. Now imagine that this restaurant chain (without your knowledge or approval) used non-inspected meat that caused several deaths. With unlimited liability, it would be conceivable that you (as a passive investor) could lose everything and be forced into bankruptcy for actions that you had no influence on. If this were the legal environment, very few people would be willing to purchase shares of stock (becoming owners) in corporations. This would greatly restrict the amount of capital and make it harder for firms to raise the necessary money to build plants, develop new products, hire employees, etc. Limited liability is essential to creating an environment where investors are willing to the necessary capital to allow corporations to operate.

Double-taxation also impacts the ability of corporations to attract capital, although negatively. When investors purchase stocks and invest in ownership of a corporation, they are doing so in order to earn a profit. In investing, this profit is often referred to as a rate of return. The rate of return is what compensates the investor for both undertaking risk and for tying up the investor's money for a period of time. The investor is concerned with the rate of return after taxes as that is what will be left over for the investor to spend. Double-taxation lowers the after-tax rate of return and means investors must demand a higher before-tax rate of return. This makes it more expensive for firms to raise money and also means that some projects may no longer be worth pursuing. The more that firms must pay to raise money (referred to as the cost of capital), the less productive the economy will be. This is why things like capital gains and dividend tax cuts are often thought to be something that can stimulate the economy.

Question 3

Because of the separation between ownership and management in the corporate form of ownership, it is critical that the passive owners get the necessary information regarding the firm's financial performance in order to evaluate their investment. Without accurate and reliable information, the owners cannot make good decisions about which corporations to invest in. Also, unethical managers could use misinformation to take advantage of investors. If there were not audited financial statements, managers could exaggerate their performance in order to get more pay and other perks as shareholders would think that management was more productive than it actually was. This scenario occasionally occurs even with audited financial statements as some managers are able to commit fraud and trick the auditors. In the late-1990/early-2000 time period there were several instances of this occurring. These financial scandals severely eroded investor confidence and were one of the factors in stock prices plunging during 2001-2003. As a response, a series of enhanced financial reporting regulations called Sarbanes-Oxley were passed to improve the accuracy of information. While this has resulted in much better information for owners to use in evaluating investment decisions and which corporations to invest in, it is also quite costly for the corporations. As these higher costs lower profitability, ultimately it is the stockholders (owners) themselves that are paying for this better information. Is it worthwhile? There is much debate about that. It is clear that too little information is problematic, but spending too much on information can also be bad. If a firm losses too much of their profits in preparing the information, there may not be enough left over to make the investment worthwhile. Finding the balance is a challenging proposition.

Question 4

The two primary instruments corporations issue to raise money are stocks (equity) and bonds (debt). Stocks are an ownership interest in the firm and bonds are a structured loan made to the firm. (Note – there are many other forms of debt financing other than bonds {bank loans, leases, accounts payable, etc.} but bonds are a primary source of long-term debt financing for many corporations). When comparing stocks and bonds it is important to think of the primary characteristics of each.

Cash Flows Paid to Investors

Stocks pay a variable cash flow stream called dividends. Dividends can increase or decrease over time and firms are not required to pay them (many stocks currently pay no dividends). In addition to profiting from dividends, stockholders may also see a capital gain when the value of their stock goes up (or a capital loss if the value of the stock goes down). The change in the value of the stock will be related to the prospects of the business. In general, the more successful the business the greater the value of the stock since a share of stock represents a small ownership in the business.

Bonds make two primary payments to investors. First is the coupon payment. This is a fixed annual interest payment to bondholders. Unlike dividends, coupon payments do not increase or decrease over time and the firm must make promised payments or it can be forced into bankruptcy. The second form of cash flow paid to investors is the par value. At the end of the bonds life, the firm will pay the bondholders a par value (or sometimes called maturity value) to retire the bond. The coupon payment represents the interest and the par value represents the return of the borrowed money. (Side Note – the value of a bond can also fluctuate based on changes in market rates of interest as we will see later in the semester).

Lifespan

Stocks have an infinite time horizon. The ownership interests exists as long as the firm does. If the firm goes bankrupt or is purchased (takeover) by another firm, then the stock may cease to exist. However, the stock never matures. Your ownership interest generated by buying 100 shares of PepsiCo until (A) you sell it to someone else, (B) PepsiCo ceases to exist as a public company.
Bonds have a finite time horizon. A bond's maturity (for example 5 years) is set at the time the bond is issued and once that maturity is reached the bondholder is paid the par value and will no longer receive coupon interest payments.

Note that both stocks and bonds can be sold at any time in the financial markets, so purchasing a stock does not commit you to holding it forever and purchasing a bond does not commit you to holding it until maturity.

Control

Stockholders are not involved in running the firm or making strategic decisions for the firm. However, they have limited control through their election of the board of directors. The board of directors is in turn responsible for hiring, firing, and compensating management. For practical purposes, most stockholders have very little control of the firm.
Bondholders have no control over the firm as they are creditors rather than owners. However, bondholders will usually include provisions that protect their interests to some extent in the legal agreement created when the bonds were issued.

Risk

Stocks are riskier from the investors' perspective. Because dividends are variable, investors do not know what they will receive in terms of cash flows. Also, stockholders have a lower priority of claims than do bondholders. This means bondholders must be paid in full before stockholders get anything.
Bonds are less risky from the investors' perspective. The cash flows (coupon payments and par value) are known in advance and bondholders have a higher priority of claim than stockholders making it more likely they will receive most of their money back if

things go wrong. As we will see later in the semester, long-term bonds are riskier than short-term bonds and some types of bonds are riskier than others based on who issued them.

Return

Risk and return are closely related. Since stocks are riskier, they typically offer investors higher rates of return than do bonds.

Question 5

The goal of financial management is to maximize shareholder wealth (the value of the firm). Management accomplishes this goal by focusing on

The Magnitude of expected cash flows
The Timeliness of expected cash flows
The Riskiness of expected cash flows

There are a few important observations to remember with this.

- In general, shareholder wealth is increased when the stock price increases so that maximizing shareholder wealth is the same thing as maximizing firm value.
- The value of the firm should be based on long-term value creation, not short-term stock price manipulation.
- Assuming the number of shares is held constant, increases in the stock price represent progress towards value maximization.
- Expectations mean that investors must be forward looking. The impact of what will happen over the next year is far more important than what has happened over the last year. Also, financial results need to be compared to what was expected to happen in order to be understood.
- The three elements of value maximization need to be considered as a whole, not independently. Our goal is not to minimize risk (doing so would mean never starting any new projects), but to maximize the value of the firm (shareholder wealth). It is not to maximize cash flows (as that may entail too much risk), but to maximize firm value (shareholder wealth). It is not to get money into the firm as soon as possible (as many valuable projects may require several years to be generate value), but to maximize firm value (shareholder wealth). Only when we consider all three factors as a whole can we achieve our primary goal.

Question 6

There are several reasons to focus on cash flows over earnings per share (or net income).
First, accounting earnings distort timeliness issues. In finance it is critical to recognize when cash flows are received or paid out as the value of those cash flows is dependent on when we receive them (it is better to get $1 today then the same $1 nine months from now).
Second, accounting earnings are easily distorted. There are several different ways to recognize various revenues and expenses (LIFO vs FIFO, depreciation, etc.). Changing the accounting method can change net income, but it doesn’t affect value. Focusing on cash flows reduces this problem.
Third, it is possible to generate accounting profits and not have enough money to pay the bills. Firms need healthy cash flows in order to stay in business.
The vast majority of the time, earnings per share and cash flows will tell us the same thing. When they differ, we want to focus on the cash flows.

Question 7

Risk Aversion means that, everything else equal, investors prefer less risk. In order to get people to invest in riskier investments they need to anticipate higher rates of returns. A few important points on risk aversion:

Risk Aversion does not mean the same thing as risk minimization. A risk minimizer will always choose the lowest risk alternative. A risk-averse (NOTE: That is risk-averse, not risk-a**d**verse) individual may choose the higher risk alternative if he/she is receiving enough compensation to offset the higher risk.

The degree of risk aversion is very personal and varies based on a number of factors (age, wealth, income, personality, etc.). One individual may be willing to take a higher risk for a very small increase in anticipated return while another individual may require a significantly higher anticipated return to undertake the same risk.

Risk aversion is a valid assumption for most people despite a few common exceptions. While many people love to gamble (Las Vegas, lotteries, etc.) which typically has negative expected returns, this can be explained by two factors. First, most people consider this an entertainment expense rather than an investment. Second, most people gamble with small stakes. When evaluating investment decisions, most people exhibit risk-averse behavior.

Question 8

Half the time you flip the coin, you will get heads and get $2. The other half the time you will get tails and get $0. This means on average, you will get $1. Since you are paying $1 for the opportunity, your expected value is $0. On average, you won't make anything or lose anything on the flip. However, you are undertaking risk (since you could flip the coin, get tails and lose $1). A risk-averse person will not want to undertake risk without a payoff, so should not take the coin toss.

However, if you are able to buy the coin flip for only $0.90, you will be making an average profit of $0.10 every time you flip the coin. Since you are earning a profit, a risk-averse person might choose to undertake the coin flip. On the other hand, not all risk-averse people will. Some people will find the $0.10 profit high enough to take the risk while others (that are MORE risk-averse) will think $0.10 is not enough to take the risk. The amount of profit YOU need to earn in order to justify taking the risk is dependent on you as an individual. Different people will have different degrees of risk aversion.

Question 9

Globalization impacts firm value through both the magnitude of expected cash flows and the riskiness of expected cash flows. Globalization opens up more markets which can increase expected cash flows. This is because approximately only 5% of the global population and 25% of the global GDP belong to the US. That implies that 95% of our potential market in terms of customers and 75% of our potential market in terms of dollars lies outside the US.

Globalization also exposes firms to more risk factors (currency risk, political risk, cultural risk, etc.). In most cases, the benefits of the higher potential expected cash flows more than offset the negatives of the increased risk.

Question 10

Social Responsibility – Being proactively concerned with the welfare of society
Ethics – A standard of conduct or moral behavior

Social responsibility and ethics are factors that help us achieve our goal of maximizing firm value over the long run. Ethics adds value through a concept known as "reputational capital." When employees, customers, suppliers, etc. feel that our firm is ethical and trustworthy, this will help us in many ways. For instance, a firm that has a reputation of treating its employees in a fair and respectful way will likely have an easier time recruiting and keeping high quality employees. Firms that treat suppliers in an unethical manner may find those suppliers unwilling to do business with them in the future. Social responsibility can help add value through both a marketing perspective as well as through employee relationships. Customers feel better about spending money with firms that have a positive image and employees feel better about working for companies with a positive image.

One note about social responsibility though is that it should not be the primary goal of the firm. For instance, a firm that donated 100% of their profits to a specific charity would be treating their stockholders in an unethical manner. The management of the firm is essentially allocating the stockholders' money. To the extent that social responsibility adds value, it is a win-win situation as both society and the shareholder benefit. However, spending too much on social responsibility (to the point that it lowers firm value) is merely a situation of management taking money from shareholders.

Question 11

An agency relationship exists when one party (the principle) hires another party (the agent) to perform a task and then grants that agent decision making authority. In the context of finance, the primary agency relationship exists between managers and stockholders. Stockholders are the principles and management is the agent. If both the principle and the agent have the same goal, the agency relationship is strong. If not, there is potential for an agency conflict. The corporate form of business organization introduces an agency conflict as stockholders want managers to maximize firm value and managers want to maximize their own happiness. Oftentimes these goals do not align. In order to align these goals, a compensation system needs to be designed that compensates management for engaging in value maximizing behavior. One tool for this is to make a significant portion of management compensation in the form of company stock. This makes managers into stockholders and helps align their goals.

Question 12

Executive pay is a controversial issue as the level of executive pay has exploded over the past decades. In 2016, the average total compensation for CEOs of the S&P 500 firms was $13.1 million. This is 347 times the average compensation to production and nonsupervisory workers (instructor's note – notice that the comparison is not to all other employees, but to a specific subset of employees). The CEO of Alphabet topped the list with a total compensation of $100.6 million. A recent study by MSCI found that – "On a 10-year cumulative basis, total shareholder returns of those companies whose total summary pay (the level that must be disclosed in the summary tables of proxy statements) was below their sector median outperformed those companies where pay exceeded the sector median by as much as 39%." In other words, the greater the compensation to the CEO the LOWER the performance!

Some people will argue that the high level of executive compensation is merely a reflection of market forces. The job of CEO is demanding and consuming. A top quality hire may be able to make significant gains for shareholders and the number of qualified candidates is relatively small. No one is forcing firms to pay these high levels of compensation. If there are a billion shares of stock outstanding (Wal-Mart has approximately 3 billion shares as an example) and the CEO can make the value of each share increase by $0.50 a share more than the next most qualified person, he or she would be worth $500 million more to shareholders. For large firms, the value of the CEO can easily be in the hundreds of millions or more. Thus, maybe the large compensation packages are justified.

On the other hand, are executive salaries really operating on a free market? Do the boards of directors that are responsible for setting salaries and hiring executives really have the shareholders best interests at heart? For instance, let's say you were on the board of directors for XYZ corp. Might you be more willing to pay whatever it takes to get the person you want for the job (or retain the person currently in the job)? After all, you are not spending your money. Also, if you are currently an executive elsewhere or have the potential to be one in the future, isn't it in your best interest to push the market price of CEOs higher? Do you think it will be easier to work with the CEO (who is often interacting with and usually a member of the board) when the CEO is well compensated? There are several arguments that call into question whether or not the board of directors is ideally suited to determine optimal CEO salaries.

There are arguments that suggest CEO salaries are justifiably high and those that suggest that they are artificially high. You can make a rational argument for each side of the debate. I will not share my final opinion (although you may be able to infer it) as I don't want to artificially influence yours. However, I would encourage you to consider the arguments instead of making your decision solely based on emotion.
