1 Who Are the Players in Corporate Finance?

Learning Points

- The players in corporate finance and their objectives
- The six ideas in corporate finance

There are four major players in corporate finance – firms, investors, financial intermediaries, and governments.

When we think of firms, we think of big faceless corporate entities that have the right of freedom of speech (in the United States, thanks to the Supreme Court), possibly the right to bear arms[1], and possibly the right to self-defense with lethal force.[2] Yet firms need not be big, nor do they need to have shares that can be purchased on the open market. They do not even have to involve limited liability. In this book, I will refer to firms in the broadest possible sense – they are groups of individuals who work together to achieve a common goal. Your neighborhood coffee shop fits this definition, and so does Microsoft. Firms can have one owner – or a million different shareholders. In the end, they are a collection of individuals working together.

What are the concerns of the firm? They are broadly the same financial concerns that I have as an individual. If I were to think of my two most important financial questions, the first would be how I could make money, and the second would be how I would spend it.[3]

These are the same broad questions firms face. The first question – how the firm spends its money – is called the **investment decision** of the firm. The second – how the firm raises its money – is called the **financing decision** of the firm. *All* decisions that the firm's managers make involve one or the other – the investment or the financing decision. For example, consider a possible human resources decision – the decision of a manager to give her employees a raise. This is an investment decision – the corporation is investing in its human capital. But by choosing to invest in its workers, the firm has less money to

invest in something else, say a new machine. In other words, the investment decision does not solely involve physical investment in factories or machines. It involves any kind of investment in any kind of asset that generates benefits for the firm in the future, and it encompasses any area, including marketing, strategy, organizational behavior, or supply chain management.

From whom does the firm raise capital? It can raise capital either directly from individuals or from financial intermediaries who are acting on behalf of the individuals. As an individual, this particular firm is not the only one approaching you. It is one of a huge number of firms, all of which offer different levels of returns for different levels of risk. As an individual, you would like the **highest possible return for the minimum level of risk**.[4] So this is an investment decision for the investor. Of all the firms and of all the contracts offered by each type of firm, which particular contract offers the highest level of return for the minimum risk? The same consideration affects the choice of the financial intermediary to whom you entrust your money, to manage for you. You would like a financial intermediary to find the highest-return, least-risky assets for you. Hopefully, this intermediary will also be the cheapest, but sadly, given the intimidating jargon, many individuals end up paying too much to intermediaries because they associate apparent complexity with quality and quality with costs (and intermediaries have every incentive to overstate the complexity of what they are doing). Severe critics of banks and financial intermediaries argue that having succeeded in preserving the mystique of their art through obfuscation, these institutions then proceed to charge you handsomely for the privilege of embracing their services. In fact, it is not quite that simple. The institutions and some of their employees are not always one-dimensional villains. The functions they perform are very important time-saving alternatives to the monitoring, search, and even higher financing costs that individuals and firms might otherwise face.

What specifically do financial intermediaries do that is so important? One of their major roles is to act as a broker.[5] They bring together providers of finance (the investors) with the organizations that need finance (the firms). They charge for providing this matching service. They also advise firms

and managers as to the right price or value of assets and the amount to pay. Financial intermediaries can act on behalf of either the investors or the firms (or both). Examples of intermediaries acting on behalf of the investors include mutual and hedge funds. These collect money from investors and promise to invest the money in assets that provide the highest return for the minimum amount of risk. They make money by charging fees for the investment service. Another intermediary is a commercial bank. The bank aggregates deposits from individuals and lends the aggregated deposits to firms in the form of loans. It makes money by charging an interest rate to borrowers that is higher than the rate it pays to the individuals depositing money with the bank. It can also make profits (which can be very significant) by managing the relative maturities of the loans it makes and the deposits it takes according to the pattern of interest rates over different time horizons (what is called the term structure of interest rates). An investment bank is yet another type of intermediary that advises the firm on raising capital, buying other firms (acquisitions), and other corporate activities. It makes money by charging the firms substantial fees for these services.

Finally, governments form the last set of players in the financial markets. The government typically has three effects on the economy. First, it plays a reallocation role. It takes money away from one sector and gives it to another. Sometimes this is efficient, in that the sectors to which resources are being allocated are more productive than sectors from which resources are being taken away. Sometimes this is because sectors that complain loudly are given large allocations, while sectors that do not complain have money taken away, which is not necessarily efficient. An example of the latter is subsidies. Subsidies typically help one narrow sector of the economy. However, they hurt other sectors that pay taxes but do not receive subsidies. Mortgage tax relief is a subsidy that helps home owners at the expense of renters. A tax on sugar imports hurts the general sugar consuming population to benefit a narrow group of sugar growers. The taxes and subsidies set by the government also play important roles in corporate finance and individual financial decisions. For example, the various

rates that form the tax schedule faced by individuals and firms are central to the firm's assessment of the viability of an investment/project. Similarly, because interest on debt is tax deductible while dividends paid to shareholders are not, this has significant implications for how firms choose to finance themselves. The government's responsibility for managing fluctuations in the local currency and its exchange rates also has implications for firms and individuals, particularly those involved in international trade with cash flows denominated in a foreign currency. The inflation rate, which the government (either directly or through a central bank) attempts to control and manage, is key to the real and nominal interest rate structure that features in investing and financing decisions.

Second, the government has a multiplier effect. In a recession, some economists argue that the government should increase the demand for products and services by enacting policies that increase demand. For example, governments should spend money on roads and even, according to theory, on digging holes. Workers will then go out and spend their pay, providing further cash to businesses, who will then hire more workers, spend the money on wages, and so on. Preferably, the government investment should not crowd out possible private investment that firms would have done by themselves anyway. This use of taxes and spending to move the economy – that is, fiscal policy or demand management – was central to the policy prescriptions of John Maynard Keynes in the late 1930s. When there is a gap between a government's expenditure and its revenues, it bridges that gap by borrowing or raising debt, which involves the government setting a price in its bid for funds to cover the funding gap. This too has implications for the theory and practice of corporate finance. Most governments retain sovereignty and responsibility for economic growth (measured by GDP per capita), and for measures allied to productivity, the level of unemployment, the health and state of its international accounts with other nations, that is, its balance of payments, and finally the level of general price inflation. These government activities – while in essence the subject of a macroeconomics course and therefore beyond the scope of this book – influence variables that loom very large in the investing and financing

decisions of firms and individuals. For example, we will see in the upcoming chapters that the risk-free rate is a crucial variable for the financing and investing decisions made by both firms and investors. This variable is the rate bid for government benchmark debt, which can be short-term or longer (five, ten, or even thirty years). This is in turn dependent on the government's budgetary position. The risk-free rate is central to the computation of the discount rate (through a capital-asset pricing model defined later in this chapter), which in turn is essential for deciding the firm's investment policy.

Finally, the government plays a regulatory role. It tells investors and firms what they can or cannot do. Governments play an active role in shaping the regulatory environment for business. Firms and individuals factor the relevant details of the current environment into their financing and investing decisions.

All these different players and their interactions can be summed up in Figure 1.1.

These different players appear to have multiple possibly conflicting objectives. However, their decisions are still governed by the same basic six ideas I mention above. What are these six ideas?

The Six Ideas of Corporate Finance

Net Present Value (NPV): The first idea is that of Net Present Value (NPV). Consider the investment decision of the firm. The investment decision involves payoffs. The basic idea is that managers aim to maximize the Net Present Value of all these payoffs from any decision, and the decision rule is that the manager needs to invest if and only if the net present value of the investment is positive. There are only three steps in computing NPV. The first step is computing all the cash flows from a particular investment. Unfortunately, although some of these cash flows arise right away, others may arise several years later (the initial investment usually happens today and payoffs occur in the future). Hence, the second step is to compute the value of all these payoffs at one point of time. This involves computing the discount rate. This is an interest rate that tells

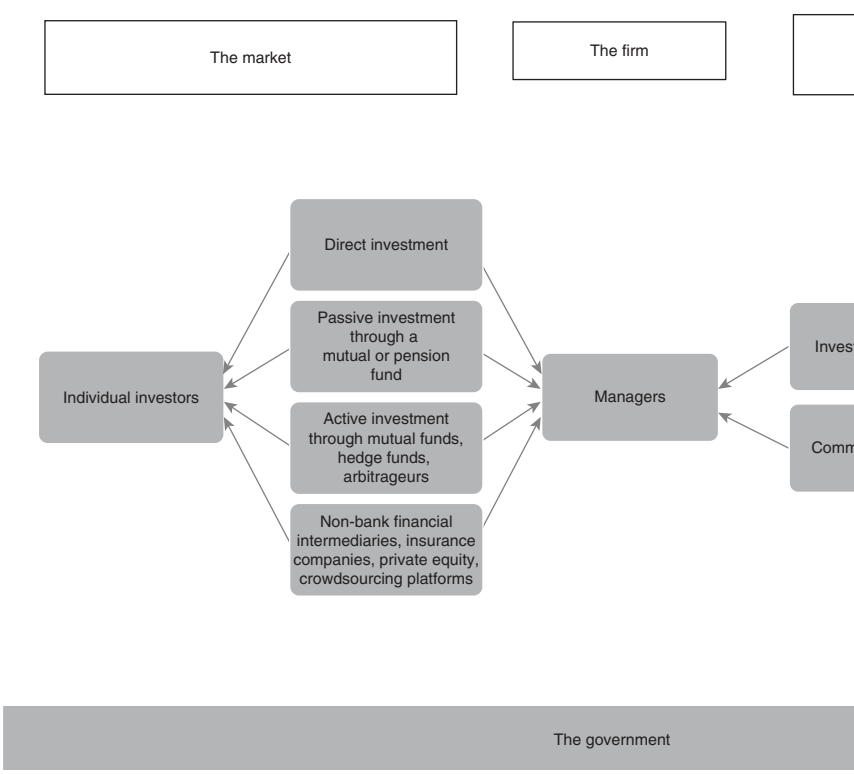

Figure 1.1 The players and their interactions

you the value today of a payoff you will get sometime in the future. By using the discount rate, we can collapse all future cash flows into one current value, which can then be netted against the initial cost. The third and final step involves deciding how to finance the asset. The major reason this is important is taxes. Some forms of financing (debt for example) are tax-deductible – interest is paid before taxes are paid, thus reducing taxes. So the after-tax cost of debt is reduced. Hence, the mix of financing changes the effective interest rate you pay.

Portfolio Theory and the Capital Asset Pricing Model: Computing the NPV involves calculating the interest rate. Where does this rate come from? Investors decide this interest rate, not the firm. Recall that the firm is approaching the investor to raise financing. But the firm is only one of several who are simultaneously approaching the investor. In other words, the investor needs to decide how to allocate her savings among all the investment opportunities she is faced with. In order to invest in a particular firm, the firm needs to offer a rate of return at least as good as the next-best alternative the investor has. But how do we find the next-best alternative for every investor? The answer to this conundrum was proposed by Harry Markowitz and Bill Sharpe, who were awarded the 1990 Nobel Prize in Economics[6] for their contribution. The essence of their contribution was to note that individuals do not actually hold investments in isolation. They hold them as parts of an investment portfolio. The investment portfolio has both an expected return and a level of risk, which can be computed statistically if we know what the level of risk and return are for the individual investments in the portfolio. If we then combine the investment portfolio with a riskless asset such as a government bond, we can identify a unique portfolio – the market portfolio – the return to which determines the discount rate for any investment. The actual formula they came up with to calculate the discount rate is called the Capital Asset Pricing Model formula or the CAPM (pronounced CAP-M) for short.

Capital Structure Theory: Capital structure theory defines how the discount rate is affected by the forms of capital the firm chooses to raise, typically debt or equity. Knowing what different

types of investors demand in the form of returns, enables the firm to plan its amount and type of financing. All types of financing are not equivalent. Specifically, interest on debt is usually tax-deductible while dividends (returns obtained from equity) are usually not. Should the firm issue debt or equity? Franco Modigliani and Merton Miller both received a Nobel Prize for answering this question systematically.[7] The idea is that in a perfect world (there are no taxes, everyone has the same level of information, and there are no lawyers (no bankruptcy costs)), the form of financing does not matter. As they show in a proof that is directly taken from the no-free-lunch idea, the value of the firm is unaffected by whether you choose to finance the firm's investment by equity, debt, or the earnings generated by the firm. However, once you start letting in imperfections, such as taxes, asymmetric information, and so on, the form of financing does matter.

Option Pricing Theory: A range of investment decisions that the firm makes (the decision to start a new factory, for example) cannot be analyzed easily using NPV. To understand these decisions, we need option pricing theory. A call option gives you the right to buy a particular asset at a price we fix today. But – and this is the key ingredient of an option – we are not obliged to go through with the deal. If the market price of the asset falls, for example, we will no longer want to carry out the deal (since we can buy it cheaper on the open market), and thanks to the option, we don't have to. Similarly, buying a put option gives us the right to sell the asset at a price we fix today. However, it is important to note that the seller of the option does not have the right to refuse you when you wish to buy or sell. For example, when the buyer wishes to exercise a call option, the seller must turn over the asset and take the fixed price in exchange. This will inevitably happen only when the deal is unfavorable to the option seller (the asset must be worth more than the fixed price, or the option holder will not exercise). To persuade the option seller to sell the option, he has to charge a price up front. Option pricing theory tells you what that price should be. Too high a price means that no one will buy the option from you. Setting too low a price on a regular basis means that when the buyers exercise the options, you will eventually be bankrupted.

How should the option seller set the price? The answer to this question was provided by Fischer Black, Myron Scholes, and Robert Merton, the latter two of whom shared the 1997 Nobel Prize in Economics for their solution.[8] Their answer was also a direct application of the no-free-lunch idea. They set up a portfolio that consisted of the underlying asset and a riskless asset, a bond, that had the same final payoff as the option. The no-free-lunch principle says that if two assets have the same final payoff, they must have the same initial cost. Hence, since we can compute the cost of a portfolio of the asset and the bond that perfectly replicates the payoff to the option, the cost of the portfolio must be the cost of the option.

Asymmetric Information: Every transaction you make involves asymmetric information. Suppose you are trying to buy a used car. The seller of the car is likely to have much more information than you on the true value of the car, whether the car is in good condition, whether the seller has skimped on servicing and maintenance, and so on. The seller always has the incentive to claim to you that the car is in amazingly good condition. Does this mean that you are worse off? Interestingly enough, the answer is no. You know you are informationally disadvantaged. Hence, you will drop your buying price to take the disadvantage into account. The sellers who are selling very good cars are disadvantaged (because you offer just the average price) and have incentives to prove that the car is in really good condition. This idea is one of the most influential ideas in financial economics, and can be used to understand everything from the used car market to executive pay scandals, business ethics, and financial policy. George Akerlof, Michael Spence, and Joseph Stiglitz shared the 2001 Nobel Prize for developing some seminal ideas in analyzing markets with asymmetric information.

Market Efficiency: Efficient markets are markets that fully reflect all available information. While this seems like a simple idea, this is possibly the most controversial one in corporate finance. The problem is that market efficiency does not tell us the relationship between market prices and the fundamental NPV of the asset. As noted above, computing the NPV involves computing the cash flows, the discount rate, and adjusting the discount rate

for the financing structure of the firm. Now suppose economists use the CAPM to compute the discount rate but investors do not (they use a different asset pricing model). Prices will change when new information arrives but not in a way the economist believes they will. Does this mean that markets are not efficient? Are investors not behaving rationally, or are the economists using the wrong model? In addition, investors have a range of systematic behavioral biases, and we are unable to predict which bias dominates and when the biases shift in importance. Regardless, three economists – Daniel Kahneman (2002), Eugene Fama (2013), and Robert Shiller (2013) all received Nobel Prizes for pioneering ideas that influenced this field.

So there we have it. Six ideas, five of which have been cited in awarded Nobels, govern the entirety of corporate finance. And all of them are derived from the no-arbitrage or no-free-lunch idea. Let's relate all this to the big picture. The figure below shows cash flows between firms and investors and goes on to show where the six big ideas fit in.

On the left-hand side of the figure lie the investors (the market). They are offered a menu of contracts by the firm on the right-hand side. Some of these contracts involve fixed payments every year or every six months, a promise to return the face value at the end of a fixed term, and a promise to pay off the instrument holders first in case of default. These contracts are debt contracts. Similarly, another set of contracts offers no guarantee of payments and the possibility of being paid last, if at all, if the firm defaults on its other contracts and goes bankrupt. Why would someone buy such a contract? Because it offers a possibility of large payments if the firm succeeds. To put this another way, it offers an opportunity to invest in the growth potential of the firm. We call these contracts equity. Other contracts (preferred shares, convertible bonds, and so on) may also exist. Investors decide what these contracts are worth based on what they are already holding (their portfolios) and how risky these contracts are (the Capital Asset Pricing Model). That sets the price for these contracts, what we call the bond price (for debt) and the share price (for equity).

The investors buy the share and bond contracts and transfer the money to the firm. The firm then chooses to invest