

# Chapter Eight

## Valuing and Financing an Internet Start-Up

As we noted in Chapter 1, most people go into business to make money. If the business has what it takes to be profitable, its founders often have to decide when to take out their share of the profits. They usually face at least two options: They can (1) collect the profits over the life of the business or (2) sell part or all of the business to investors who, for a price, get the right to collect some or all of the future cash flows from the business. To carry out the second option, it is important to determine how much the company is worth—it is important to value the business. In the first part of this chapter, we explore the cash flow, price-earnings (P/E) ratio, price-earnings growth (PEG), and business model based methods for valuing technology start-ups. We also take a look at the role of intellectual capital in valuing companies. We begin with a brief discussion of the initial public offering (IPO) process.

In the second part of the chapter, we recognize that somewhere in the process of conceiving and executing a business model, a firm usually needs money; that is, before a firm can start making money, it needs money. Finding, obtaining, and allocating this money to the right components of the business model is called financing. We explore the different sources of financing for a start-up and suggest that although low-cost money is important, the complementary assets and intellectual capital that often come with some financing sources can be even more important for start-ups.

### WHEN TO CASH OUT

#### Over a Firm's Life Cycle

Over each accounting period, a firm receives money from its revenue sources but must also spend money to cover the costs that it incurs in offering value

to its customers. The cash that the company generates is normally called *cash inflows* while the cash that it consumes is called *cash outflows*. The excess of cash inflows over cash outflows is the amount of money available to the owners of the business to take out or plow back into the business.

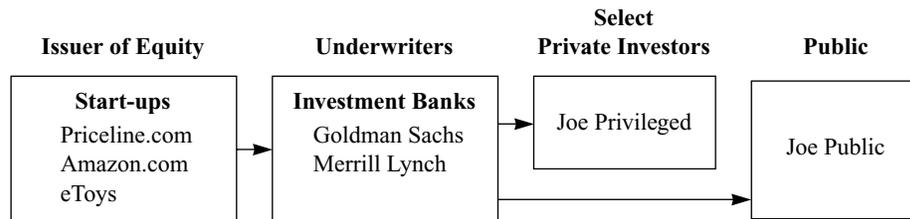
### Collecting Early

Rather than wait to collect profits over the life of a firm, an entrepreneur may decide to collect today by selling his or her right to collect future profits to someone else. Very early in the life of a start-up, this someone is usually a venture capital firm. The funds collected at this stage, however, usually go to meet the large cash outflows required to keep the fledgling start-up going, not for the owners to take out. In return for the funding, the venture capital firm usually gets a share of the company and the right to a piece of future cash flows. Founders can also sell part of their company to institutional investors such as retirement funds or to rich individuals often known as angel investors. A popular way, however, is to sell shares of the company to the public by means of an **initial public offering (IPO)**. In an IPO, anyone can buy shares of the company and, in return, is entitled to an appropriate share of the company's future free cash flows. Indeed, the primary motivation for venture capital firms and other early investors is the anticipation of cashing out at the time of the IPO or shortly thereafter. They usually do not invest in a start-up with the intention of waiting to share in future earnings from the firm.

## THE IPO PROCESS

In the late 1990s, wealth in the billions of dollars was created for many Americans through the IPO process. The process of issuing an IPO starts with building a viable business.<sup>1</sup> The firm then finds an underwriter, usually an **investment bank** such as Goldman Sachs, Solomon Smith Barney, or Morgan Stanley Dean Witter (see Figure 8.1). The investment bank determines how much the firm is worth, how many shares to issue to the public, when to issue the shares, and what to price the shares. According to the full disclosure requirement of the Securities Act of 1933, the investment bank must file a registration statement with the Securities and Exchange Commission (SEC) in which it provides a description of the business, financial statements, the purposes of the money raised from the stock issue, any legal proceedings involving the firm, biographical information on the officers of the firm, and the number of shares owned by officers of the company and any shareholder who owns more than 10 percent of the stock. Following the filing date is a **cooling off period** during which the SEC verifies that full disclosure has been made. When the SEC is satisfied, it gives its approval for the issue to be offered to the public. The date on which this approval comes is called the effective date since from that day on the firm can hold its IPO. While waiting for approval from the SEC, the investment bank usually tries to generate interest in the issue. The

FIGURE 8.1 The IPO Process



amount of interest from investors is an important factor in determining the price of the issue. Each of these investors, usually a select group (called Joe Privileged in Figure 8.1), makes a commitment to buy a certain number of shares at the **public offering price**.

If public interest in the issue is high on the IPO date, the price of the stock may rise quickly from the offering price, making Joe Privileged very rich. In 1999 most Internet-related issues closed higher than their public offering prices. Of course, if interest from the public is very low, then Joe Privileged may not be so lucky after all and the start-up firm that issued the stock gets a lower price than the public offering price.<sup>2</sup> The difference, also called the *spread*, is used to pay the underwriter. The underwriter usually enters one of two types of agreements with the firm. In a firm commitment, the underwriter guarantees to sell a certain number of shares. If the public does not buy all the shares, the underwriter will buy the rest. In a “best efforts” agreement, the underwriter only commits to do the best that it can to sell the shares, leaving the issuing firm responsible for any unsold shares.

### Impact of the Internet on the IPO Process

Technically, start-up firms could go straight to the public to sell their stocks. One main reason why such firms have traditionally hired investment banks is that these banks have information on how to value issues and drum up interest in an IPO through their established relations with clients—information that start-ups usually do not have. The backing of a stock issue by an investment bank lends credibility to the valuation and viability of the firm issuing the shares. Thus, investment banks act as intermediaries between issuing firms and investors. The Internet may make these benefits become less important. Now, an issue’s prospectus can be posted on the Internet and instead of a select number of clients buying the shares at a guaranteed price before the rest of the public, the issues can be auctioned to the public through an Internet auction house such as eBay without passing through an investment bank. In any case, to determine the number of shares to be sold and at what price, the investment bank or the firm must value the business.

## VALUATION OF A BUSINESS

We next explore several methods that have been used to value firms and businesses: Cash flow, price-earnings (P/E) ratio, price-earnings growth (PEG) ratio, and one based on the business model.

### Cash Flows

In the *Theory of Investment Value*, written over 50 years ago, John Burr Williams set forth the equation for value, which we condense here: The value of any stock, bond or business is determined by the cash inflows and outflows—discounted at the appropriate interest rate—that can be expected to occur during the remaining life of the asset.

*Warren Buffett*

The value of a business or firm, then, is the **present value** of its future free cash flows discounted at its cost of capital. Thus, the value of a firm  $V$  is given by:<sup>3</sup>

$$\begin{aligned}
 V &= C_0 + \frac{C_1}{(1 + r_k)} + \frac{C_2}{(1 + r_k)^2} + \dots + \frac{C_n}{(1 + r_k)^n} \\
 &= \sum_{t=0}^{t=n} \frac{C_t}{(1 + r_k)^t} \tag{1}
 \end{aligned}$$

where

$C_t$  is the free cash flow at time  $t$ , and  
 $r_k$  is the firm's cost of capital.

This discounting reflects the higher value of money today than its value tomorrow.

If the value of a stock is determined by the present value of the cash inflows and outflows that can be expected to occur during the remaining life of the business, valuing a business boils down to determining what those cash inflows and outflows will be over the life of the business and the appropriate discount rate.

### Free Cash Flow

**Free cash flow** is the cash from a business's operations that is available for distribution to its claim holders—equity investors and debtors—who provide

capital. It is the difference between cash earnings and cash investments. A firm's free cash flow,  $C_t$ , in period  $t$  is given by:<sup>4</sup>

$$\begin{aligned} C_t &= \text{Cash earnings (from income statement)} - \text{Cash investments (from balance sheet)} \\ &= \text{Operating income} - \text{Taxes on operating income} + \text{Depreciation} + \text{Noncash charges} \\ &\quad - \text{Increase in } \mathbf{\textit{working capital}} \text{ (current assets} - \text{current liabilities) in period } t \\ &\quad - \text{Cash expenditures on investments in period } t \end{aligned} \quad (2)$$

Operating income, taxes on operating income, depreciation, and noncash charges are from the firm's income statement while increase in working capital and cash expenditures on investments are from the balance sheet.

#### **Discount Rate**

The **discount rate**,  $r_k$ , is the firm's opportunity cost of capital. It is the expected rate of return that could be earned from an investment of similar risk. It reflects the systematic risk that is specific to the firm and therefore undiversifiable. The discount rate can be estimated using a model such as the **capital asset pricing model (CAPM)**:

$$r_k = r_f + \beta_i(r_m - r_f) \quad (3)$$

That is, the discount rate is equal to  $r_f$ , the risk-free rate such as the interest rate on Treasury bills, plus a risk premium. This **risk premium** is equal to the **systematic risk** or beta coefficient,  $\beta_i$ , for the business or firms, and the excess return over the market return  $r_m$ .

#### **Bricks-and-Mortar vs. Internet Cash Flows**

One advantage that Internet companies have over their bricks-and-mortar competitors is that they can take advantage of the Internet's properties in crafting their business models to improve their cash flows. Consider again Amazon.com. Before it built its own warehouses, it carried no inventory. Whenever a customer placed an order for a book, the customer paid with his or her credit card and Amazon collected the cash almost immediately. Amazon then ordered the book from a wholesaler or publisher who delivered it directly to the customer right away but did not collect the cash for the book from Amazon until 30 to 45 days later. Effectively, Amazon kept the customer's money for 30 to 45 days before paying the book wholesaler or publisher. This meant that Amazon had negative working capital for that particular transaction and from expression (2) above, this means positive cash flow for Amazon. Even after building its own warehouses, Amazon kept inventory for an average of only two weeks. Additionally, whenever Amazon doubled its sales it did not have to double the number of physical stores—as would a bricks-and-mortar competitor like Borders—because it had none. That also saved on cash expenditures for investment, effectively increasing free cash flow.

Free cash flow gains do not come only from pure play Internet firms like Amazon.com. Bricks-and-mortar firms could also boost their free cash flows by adopting the Internet. Consider automakers. In 1998 alone, automakers had an estimated \$100 billion in inventory, much of it because of their inability to forecast what customers wanted. By using the Internet to “go direct” to customers using a Dell-type model,<sup>5</sup> much of the inventory could be eliminated. Less inventory means less working capital and therefore more free cash flow.

The main problem with using equation (1) for determining the value of a firm is that it is very difficult to predict what the cash flows and cost of capital will be in the future. The situation is particularly challenging for start-up firms, most of which do not have positive cash flows. One way to circumvent this problem is to find a firm whose systematic risk or beta coefficient is similar to that of the start-ups and use that firm’s cash flows with the necessary adjustments to estimate the cash flows of the start-up. This procedure is analogous to the more widely used price-earnings methods that we discuss next.

### Price-Earnings (P/E) Ratio

In the **price-earnings (P/E) ratio** method of valuing firms, a P/E ratio for the firm is first determined. By multiplying this P/E ratio by the firm’s earnings, the price per share can be obtained. Also called the capitalization factor, the P/E ratio reflects investors’ expectations of future earnings. The question is, How does one determine the P/E ratio for the firm to begin with? One thing to do is to find firms with similar beta coefficients and use their P/E ratio as a base; that is, look for firms whose systematic risk is similar to that of the firm in question. The P/E ratio from the reference group is then adjusted for any differences between the firm and the reference firms. The ratio is further adjusted for general conditions. For example, the ratio is adjusted upward in a bull market and downward in a bear market.<sup>6</sup> After all the adjustments have been made to the ratio, it is multiplied by the firm’s earnings to obtain its share price.

**Simple Example:** It is now 2003 and back in 2001 you had founded an online auction firm that earned \$3 million in 2002. You are about to go public. With the help of the venture capital firm that financed many of your start-up activities, you have found an investment bank which suggests that you issue 5 million shares in an initial public offering. What should be the share price of your firm? The P/E ratio of other online auction firms is 80. The earnings per share of your company is  $\$3\text{M}/5\text{M} = \$0.60$ . Since the P/E ratio is 80,

$$\frac{P}{E} = \frac{p}{\$0.6} = 80 \Rightarrow p = \$48$$

Thus, the share price that you should expect is \$48.

This method, although very popular, has several shortcomings. First, although earnings are highly correlated with cash flows, they are not free cash flows. A firm can be profitable but have negative free cash flows and vice versa. Second,

there is more than one type of earnings, so deciding on which one to use is not easy. Third, there is always the question of whether historical earnings are a good predictor of future earnings.

### Price-Earnings Growth (PEG) Ratio

The **price-earnings growth (PEG) ratio** method more explicitly incorporates the role of growth. Calculations are similar to those that use the P/E with adjustments made for growth. Consider our online auction example. Suppose the firm is growing at 90 percent annually. Since its P/E ratio is 80, we obtain the PEG ratio by dividing the P/E ratio by its annual growth rate:

$$\frac{80}{90} = .89$$

What is considered a good PEG ratio is a matter of debate. Traditionally, stocks with PEG ratios of less than 1.00 were considered good buys. Anything above that was thought to be overpriced. Such generalizations are no substitute for careful research that digests a firm's business model to understand why one can expect profits from the company down the line.

The PEG ratio suffers from the same types of problems as the P/E ratio. In addition, ratios lose some useful information when data are simplified for better absorption. Consider firms A and B, each with a PEG ratio of 1. However, firm A has a P/E ratio of 50 and a growth rate of 50 percent while B has a P/E ratio of 4 and a growth rate of 4 percent. These seem to be two very different firms in different industries; therefore, each stock is likely to attract a different type of investor. Firm B may be early in its life in a fast-growing industry where it has invested a large amount of up-front capital that should pay off soon, while A is in a mature industry with high variable costs and not much hope of growth. In any case, using both methods to value start-ups is particularly problematic because most start-ups have negative earnings, even those that are going to be profitable later.

## VALUATION OF BUSINESSES THAT ARE NOT YET PROFITABLE

Most start-up companies lose money and have negative cash flows in their formative years. In the late 1990s many Internet firms that went public had not yet become profitable. How do you estimate the value of a firm that has negative earnings? Nothing in our discussion of price-earnings and price-earning growth said anything about negative earnings. We explore two methods of accomplishing this task.

### Firm and Industry Proxies

In the firm and industry proxy method, a firm's share price is estimated using the P/E ratios of analogs—firms and industries that the analyst deems representative of the subject firm. This method is best illustrated by Henry Blodget's 1998 estimates of Amazon.com's share price (see Illustration Capsule 8.1).

## Estimating Share Prices of Firms with Negative Earnings

### ILLUSTRATION CAPSULE 8.1

He starts by looking at the size of Amazon's target market. Worldwide, the market for books, music, and videos is around \$100 billion. So how big a slice of that can the company get? Blodget draws an analogy between Amazon, the leader in its category, and Wal-Mart, the leader in discount retailing, which has a 10 percent market share. Since Amazon is adding to its product mix, he thinks it's fair to estimate that it could hit a 10 percent share in the next five years, which would amount to \$10 billion in revenues. Then, he asks, what could the company's profit margin be? Traditional retailers typically achieve net margins of 1 percent to 4 percent. But Blodget believes Amazon will be able to run leaner than land-based types by paying less rent, keeping less inventory, and

hiring fewer employees. Its net margin, he assumes, could be more like Dell's—a fatter 7 percent. So, 7 percent of \$10 billion is \$700 million in net income. The last question is, what price/earnings multiple will the market assign Amazon at that point? P/Es normally range from 10 or so for a slow-growth company to about 75 for one that's growing quickly. That means that a slow-growing Amazon could have a \$7 billion market cap, or \$44 per share (post-split), while a fast-growing Amazon could be worth \$53 billion, or \$332 per share. Using these assumptions, Amazon's current \$25 billion market cap and \$160 share price start to seem plausible.

**Source:** *Fortune*, February 1, 1999, p. 148.

### Business Models Approach: Earnings and Cash Flow Chain

Instead of finding proxy firms and industries, we could turn to a firm's business model for some indication of future earnings potential. When we explored the pricing component of a business model in Chapter 4, we showed how a firm—with high up-front costs and relatively low variable costs—could lose a great deal of money early in the life of a product or technology but become very profitable later. We argued that the primary indicators of whether such a firm would be profitable in the future were its profit margins, market share, and revenue share growth. If a start-up is not profitable, some of the measures upstream of its profit/cash flow chain (see Figure 8.2) could be used in estimating share prices.

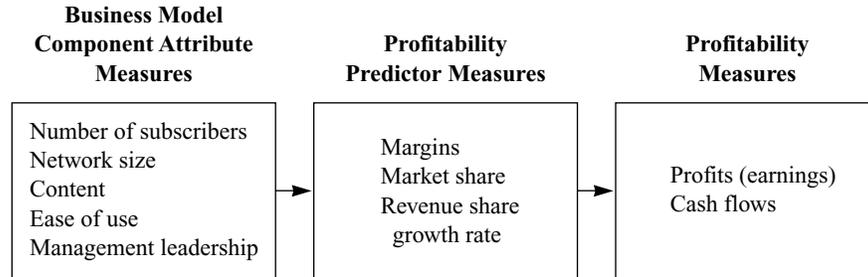
#### *Profitability Predictor Measures*

Since profit margins, market share, and revenue share growth are good **profitability predictor measures** of future profits, we can use price-margins, price-share, and price-share growth, rather than P/E or PEG ratios to determine a firm's share price. Their use is analogous to that of P/E and PEG. For example, if a new Internet service provider (ISP) is going public and we know of other ISPs that recently went public, we can estimate its value by comparing its margins, market share, or revenue share growth rate to that of the proxy firms.

#### *Business Model Component Attribute Measures*

Where margins, market share, and revenue share growth rates are not available, we could use measures of those business model component attribute measures that drive them (Figure 8.2). In valuing an ISP, for example, these

**FIGURE 8.2**  
Profits/Cash Flow Chain of an ISP



measures are the number of subscribers, network size, amount and quality of content available, ease of use of system, and management talent. For a biotechnology start-up, for example, the number of patents that the firm owns or the number of staff scientists with Ph.D.s would be a good metric.

### Implications of Market Value for Financing and Investment Strategies

The primary indication of the bursting of the dot.com boom was the crash in market valuations that became very visible in the Spring of 2000. One question that was on the minds of many investors who lost money in the burst and of many financial analysts as well was, How can one tell when a firm is overvalued? One answer is to compare the P/E ratios of the firms in question to the historical P/E ratios of firms in the same industry. PEG ratios can also be compared. In this section, we describe another method of estimating whether a stock is overvalued.

Recall from (1) that a firm’s market valuation,  $V$ , is given by

$$V = \sum_{t=0}^{t=n} \frac{C_t}{(1 + r_k)^t}$$

If we assume that after  $n$  years the firm in question will start receiving constant cash flows  $C_f$ , then (1) reduces to

$$V = \frac{C_f}{r_k(1 + r_k)^n} \tag{4}$$

If we assume that the constant cash flows start in the present year so that  $n = 0$ , (4) reduces to

$$V = \frac{C_f}{r_k} \tag{5}$$

Using expressions (4) and (5), one can obtain useful information on how overvalued or undervalued a firm’s stocks are. Such information can help individuals in their decisions to invest in a firm. It can also provide more information for firms to use in their decisions to use their market valuations to purchase other companies.

**Example** At one point in early 2000, Cisco’s market capitalization (market value) was about \$500 billion. Some analysts expected the company to earn about \$4 billion on sales of \$17 billion and about 3.7 billion shares outstanding. Given this information, would you have invested in Cisco in early 2000? Assume that in 2000 you expected to earn 20 percent in stocks that you invested in.

From (5)

$$\$500 \text{ billion} = \frac{C_f}{r_k} = \frac{C_f}{0.20}, \text{ assuming that the cost of capital is 20 percent}$$

$$C_f = \$100 \text{ billion}$$

This suggests that in the future, you should expect Cisco to have steady positive cash flows of \$100 billion (at least that much in profits). The \$100 billion number is astronomical given that Cisco’s 2000 profits were expected to be only \$4 billion. Not that many companies have revenues of \$100 billion, let alone that much in profits or positive cash flows. This suggests that Cisco may have been overvalued. A firm that knows that it is overvalued can use its stock valuation as currency to make acquisitions. Investors might want to be a little more cautious when purchasing the stocks of such companies.

## INTELLECTUAL CAPITAL: VALUING THE PARTS

If a firm with three major product lines were to be broken up, one could value each product line because it is possible to estimate earnings and free cash flows from each. Now suppose a key individual threatened to leave a start-up company. What is his or her worth to the company? How much are a firm’s client network, repeat customers, patents, and copyrights worth? Valuation of such “assets” can be problematic even for firms that have gone public and have stable cash flows and earnings. Valuing such intangibles is becoming increasingly important, especially in a knowledge economy, and has led to the term *intellectual capital*, which we will define soon. For the moment, however, consider the simple but useful balance sheet equation:

$$\text{Assets} = \text{Liabilities} + \text{Shareholder equity}$$

Whence:

$$\text{Assets} - \text{Liabilities} = \text{Book value} = \text{Shareholder equity} \quad (6)$$

One way to interpret this equation is if a firm were to close its doors to business, then what is left over to pay shareholders is the assets less liabilities—the **book value**. Prior to the decision to close its doors, however, what shareholders would get from the company if they were to sell their shares would be the **market value** of the firm (shares outstanding multiplied by share price). This suggests that market value ought to be close to book value. Table 8.1, however, indicates otherwise. Look at Microsoft. In 1994 its book value was \$4.45

**TABLE 8.1** Sample Book and Market Values

Firm	March 15, 1994		March 15, 1997		March 15, 1999	
	Book Value (\$ million)	Market Value (\$ million)	Book Value (\$ million)	Market Value (\$ million)	Book Value (\$ million)	Market Value (\$ million)
Intel	\$ 9,267	\$35,172	\$19,295	\$125,741	\$23,371	\$196,616
Microsoft	4,450	41,339	10,777	199,046	16,627	418,579
General Motors	12,823	33,188	17,506	54,243	14,984	63,839
General Electric	26,387	92,321	34,438	260,147	38,880	360,251
Cisco			4,289	64,568	7,106	166,616
Dell			1,293	41,294	2,321	111,322

billion while its market value was \$41.34 billion, or almost 10 times as much. In 1997 Microsoft’s book value was \$10.77 billion and its market value \$199 billion, almost 20 times as much. Compare this to General Motors 1997 book value of \$18 billion and market value of \$54 billion. In 1999 Microsoft’s market value was about 25 times its book value. While the differences in other firms’ book and market values are not as astounding as Microsoft’s, they are still very large.

The differences between book value and market value suggest that there is something else about each of these firms, other than the assets on their books, that makes investors believe that they will keep generating free cash flows or earnings. Why is it important to understand this difference? Because managers would like to know how to manage it, given its enormous significance. This difference has been called **intellectual capital** and has been attributed to several factors: (1) underpriced physical assets or intangible assets such as patents, trade secrets, and trademarks; (2) human capital—the people who must turn assets, underpriced or otherwise, into products or services that customers want;<sup>7</sup> (3) the product market positions that firms chose in industries that are, by their nature, more profitable than others; (4) unique resources or capabilities that are difficult to imitate or substitute, the source of the enduring advantage that allows firms to keep earning profits; and (5) knowledge, whether embedded in employees, encoded in some physical form, or resident in organizational routines that firms use to offer better value to their customers than competitors.<sup>8</sup> Such knowledge gives a firm a sustainable competitive advantage so long as it is difficult to copy, replicate, or substitute.<sup>9</sup>

### Components of Intellectual Capital

We can distinguish between three components of intellectual capital: intellectual property, human capital, and organizational capital.<sup>10</sup> All three are a function of where knowledge resides and of how it can be converted into customer value. Understanding these components and their contribution to the

market value of a firm may enable us to determine the worth of, say, human capital and therefore the worth of key individuals within a firm.

### *Intellectual Property*

The **intellectual property** component refers to codified knowledge in a form that enables a company to claim ownership, including patents, copyrights, trademarks, brand names, databases, microcodes, engineering drawings, contracts, trade secrets, documents, and semiconductor masks, as well as intangibles such as reputation, network size, installed base, client relationships, and special licenses.<sup>11</sup> These are the “*havings*” since they are things that a firm *has* opposed to the things that it *does*.<sup>12</sup> The extent to which intellectual properties are protectable, difficult to replicate, or substitute determines the extent to which firms can profit from any products or services that rest on them.

### *Human Capital*

Intellectual property, in and of itself, will not give a firm a competitive advantage. It also takes employees with the skills, know-how, experience, and competencies to build intellectual property or use it to deliver value to customers.<sup>13</sup> It also takes **human capital** which is the specialist knowledge that is resident in employees. A top-notch scientist’s knowledge of combinatorial chemistry is an example. Human capital is what Richard Hall calls the “*doing*” since it refers to the ability to perform value-adding activities—the ability to get things done.<sup>14</sup>

### *Organizational Capital*

Intellectual property and human capital, in and of themselves, may not be sufficient to give their owners a competitive advantage. For example, a cache of patents and Nobel laureates alone is not likely to give a firm a competitive advantage. Factors internal and external to a firm allow firms to turn their intellectual property and human capital into customer value and to cultivate more intellectual property. For lack of a better name, we will call these factors **organizational capital**.<sup>15</sup> Internal to a firm, the factors of organizational capital are the firm’s structure, systems, strategy, people, and culture that it uses to create, share, coordinate, and integrate the knowledge and skills embodied in individual employees to make intellectual property and to convert the intellectual property into products that customers want.<sup>16</sup> A project structure, for example, is more conducive to tasks of short duration in environments that are not fast moving while, in some industries, projects with “heavyweight” project managers perform better than those without. Still, in other industries, the culture that firms have cultivated—the “system of shared values (what is important) and beliefs (how things work) that interact with the organization’s people, organizational structures, and systems to produce behavioral norms (the way we do things around here)” —can be a source of competitive advantage.<sup>17</sup> Sometimes, factors external to the firm are also critical to the ability of firms to innovate. For example, firms in a region with a system that provides financial support and rewards for innovation, a culture that tolerates failure, the right suppliers,

customers, complementors, competitors, universities and other research institutions, and supportive government policies are conducive to the creation of intellectual property and their conversion into new products.<sup>18</sup>

## FINANCING A START-UP

A firm has several instruments for financing entrepreneurial activity: Internal assets in which the firm reallocates the resources it already has to the entrepreneurial activity; equity financing in which the firm issues equity to venture capital firms, private individuals, or the public in return for financing; debt in which the firm issues some form of debt; and complementary asset financing in which a firm reaches out for complementary assets through a strategic alliance or an acquisition.<sup>19</sup> The balance sheet relation in Figure 8.3 shows the relationships between the financing instruments.

### Internal Sources: Assets and Activity

A firm has several internal sources to which it can turn for financing an entrepreneurial activity. First, a firm can use its retained earnings. As shown in Figure 8.3, retained earnings come from the profits that a firm makes, net of any dividends that the firm pays out to shareholders. Thus, a very profitable firm does not have to seek outside financing.<sup>20</sup> Second, a firm can use existing assets, originally earmarked for another project, for the innovation. Chrysler's need for outside financing of its blockbuster minivan was reduced because it already had a front-wheel-drive engine and transmission—critical components in the minivan—that it used in its Dodge Omni and Plymouth Horizon cars.<sup>21</sup> Entrepreneurs often use personal assets. Hewlett Packard and Apple began in garages in the Silicon Valley.

### Equity

To finance its activities, a firm can issue equity; that is, through **equity financing**, a firm can sell shares of the company to investors in return for money that the firm needs. Figure 8.4 provides some elements of the equity market. Equity can be issued to the public through a stock exchange such as the NASDAQ (National Association of Securities Dealers Automated Quotations) or the London Stock Exchange. The issue can take the form of an initial public offering (IPO) in which, for the first time, a firm offers its shares to the public for purchase. For many Internet start-ups in the late 1990s, this was one of the most popular sources of financing.

For many start-ups whose products have not yet been proven, the most likely buyers of their equity are private equity firms. Private equity can be venture or nonventure. **Venture equity** is issued by start-ups in the early or later stages of their start-up cycle. In return for part ownership in the start-up, a venture capital firm or other financier will finance the start-up. Their primary motivation is to cash in during the IPO which will eventually come

**FIGURE 8.3 Sources of Financing: The Balance Sheet Context**

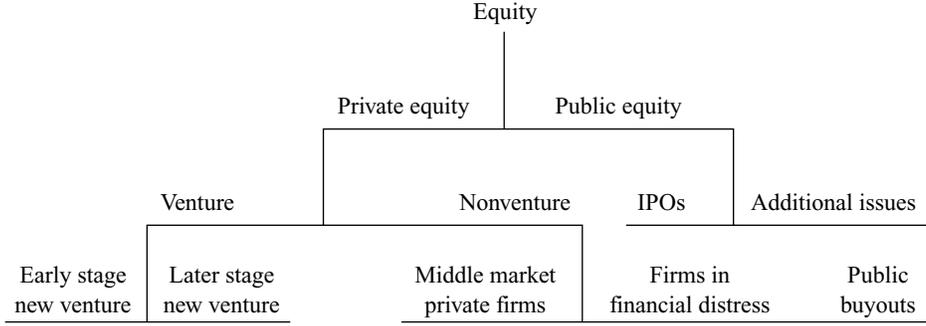
Source: Reprinted from *Innovation Management: Strategies, Implementation, and Profits* (New York: Oxford University Press, 1998), p. 200.

<b>Revenues – Expenses = Net Income</b>		
	↓	
<b>Beginning Balance of Retained Earnings</b>	+ <b>Net Income</b> – <b>Dividends</b>	= <b>Ending Balance of Retained Earnings</b>
		↓
<b>Assets = Liabilities + Paid-in Capital + Retained Earnings</b>		
<b>Assets</b>	= <b>Liabilities</b>	+ <b>Shareholders' Equity</b>
<b>Tangible assets</b>	Accounts payable	Common stock
Cash	Notes payable	Issued to venture capitalists
Marketable securities	Interest payable	Issued to the public
Accounts receivable	Income taxes payable	Preferred stock
Notes receivable	Advances from customers	Retained earnings
Interest receivable	Rent received in advance	Treasury shares
Inventories	Mortgage payable	
Prepays	Bonds payable	
Land	Capitalized lease obligations	
Buildings	Deferred income taxes	
Equipment		
Leasehold		
<b>Intangible assets</b>		
Client relations		
Distribution channels		
Brand-name reputation		
Patents		
Copyrights		
Trademarks		

after the start-up has proven itself dynamic enough to go public. In addition to providing the much-needed money, venture capital firms can also offer management expertise which can be critical for a start-up. Some venture capital firms have networks of firms in which they have stakes, and such firms can become the start-up's first customer or supplier. Such intangibles are often critical in the life of a start-up. One major drawback to obtaining venture capital is that the start-up firm often loses control of a large part of the company to the venture capital firm. The money that venture capital firms use to finance ventures can be their own or that of limited partners. In the United States, venture capital can also come from small business investment companies (SBICs). These are private corporations that have been licensed by the Small Business Administration to provide financing to risky companies. To encourage them to undertake these risky loans, the federal government gives SBICs tax breaks and Small Business Administration (SBA) loans.

**FIGURE 8.4 Different Elements of Equity**

Source: Reprinted from *Innovation Management: Strategies, Implementation, and Profits* (New York: Oxford University Press, 1998), p. 202.



**Major players**

- Venture capital firms such as Kleiner, Perkins, Caufield, and Byers; and Asset Management
- SBICs

**Source of funds for major players**

- Own money
- “Angels”
- Partnerships

**Major players**

- Buyout groups such as Kohlberg, Kravis, Roberts

**Source of funds for major players**

- Partnerships

**Debt**

A firm can also borrow money from a money-lending institution such as a bank, or sell bonds or notes; that is, it can acquire debt. The problem with **debt financing** is that the financier usually wants some physical assets as collateral—something that most start-ups usually do not have. Their assets are often intangible, largely intellectual capital, which may not be enough collateral for some banks. The drawback in borrowing is that interest payments may drain off profits that could have been plugged back into the business or paid out as dividends to investors. If a start-up does issue debt, sometimes the debt is convertible to equity.

A smart form of debt financing for start-ups is the one undertaken by Amazon.com, which we described earlier in our discussion of cash flows. Recall that the firm collected from its customers right away but did not pay its vendors until 30 to 45 days later. During that time, it used the money that it owed its vendors to finance its activities. This is sometimes called **working capital financing**.

**Complementary Assets**

As we saw in Chapter 5, complementary assets are critical to profiting from an innovation. Unfortunately, most start-up firms lack these assets. We also said that some complementary assets are difficult to replicate or substitute. For example, it is very difficult for a fledgling Web advertising firm to replicate the

kinds of relationships that bricks-and-mortar advertising firms have had for decades with Fortune 500 clients. Money from a venture capital firm or bank may not be able to buy such relations right away. An alternative is to enter some form of strategic alliance with an owner of the complementary assets, buy that owner, or sell your firm to the owner.

## Summary

Firms are in business to make money. But to make money, they often need money up front to get going. Thus, a firm has two finance-related problems: How to find and use the money that it needs, and how to cash out. An entrepreneur can collect the money from the free cash flows of his or her business over the life of the business or sell the right to collect some of the future free cash flows to venture capitalists, angels, or to the public through an initial public offering (IPO). In either case, the business must be valued so that the financier can know the value of his or her investment. Many methods have been used to value firms: free cash flow, price-earnings (P/E) ratios, price-earnings growth (PEG) ratios, and the business model. Valuing Internet start-ups is particularly troublesome because most of them have neither positive free cash flows nor positive earnings. In such a case, proxies together with predictors of earnings and cash flows such as profit margins, market share, and revenue share growth rate can be used to value a firm. Beyond that, measurable business model component attributes can be used.

There are several sources of financing for a start-up: a firm's own assets, venture capital, debt, IPO, and some form of teaming up with a firm that has complementary assets. The most important thing about financing a start-up is that money purchased with the lowest interest rate is not always the best money because start-ups usually need important complementary assets that are difficult to acquire or substitute. And teaming up with another firm that has such assets or selling an equity share to a venture capital firm may be the best way to get access to such assets.

## Key Terms

book value, 151	intellectual property, 153	profitability predictor measures, 149
capital asset pricing model (CAPM), 146	investment bank, 143	public offering price, 144
cooling off period, 143	market value, 151	risk premium, 146
debt financing, 156	organizational capital, 153	systematic risk, 146
discount rate, 146	present value, 145	venture equity, 154
equity financing, 154	price-earnings growth (PEG) ratio, 148	working capital, 146
free cash flow, 145	price-earnings (P/E) ratio, 147	working capital financing, 156
human capital, 153		
initial public offering (IPO), 143		
intellectual capital, 152		

## Discussion Questions

1. What is the difference between earnings and cash flows? Can an unprofitable firm have positive free cash flows?
2. What are the drawbacks of using P/E and PEG ratios to value firms?
3. Why is negative working capital a good thing?
4. Why might a firm that is still unprofitable have a very high market value? How would you value such a firm?
5. When might a start-up give up an interest-free loan from a bank and take venture capital money even though the owners of the start-up may lose the control of and equity in their firm?

## Notes

1. See, for example, S. C. Blowers, P. H. Griffith, and T. L. Milan, *The Ernst & Young Guide to the IPO Value Journey* (New York: John Wiley, 1999).
2. [www.internetnews.com/stocks/ipodex/](http://www.internetnews.com/stocks/ipodex/).
3. See, for example, R. A. Brealey and S. C. Myers, *Principles of Corporate Finance* (New York: McGraw-Hill, 1995).
4. See, for example, C. P. Stickney and R. L. Weil, *Financial Accounting*, 7th ed. (New York: Dryden, 1994); W. Petty, “Harvesting,” in *The Portable MBA in Entrepreneurship*, ed. by W. D. Bygrave (New York: John Wiley, 1997), pp. 414–41.
5. In the United States, however, franchise laws do not permit direct sales of cars to customers.
6. M. J. Dollinger, *Entrepreneurship: Strategies and Resources* (Burr Ridge, IL: Richard D. Irwin, 1995).
7. D. Ulrich, “Intellectual Capital = Competence  $\times$  Commitment,” *Sloan Management Review* 39, no. 2 (1998), pp. 15–27.
8. L. Edvinsson and P. Sullivan, “Developing a Model for Managing Intellectual Capital,” *European Management Journal* 14, no. 4 (August 1996), p. 356; I. Nonaka, “A Dynamic Theory of Organizational Knowledge Creation,” *Organization Science* 5, no. 1 pp. 477–501; T. A. Stewart, *Intellectual Capital: The New Wealth of Organizations* (New York: Currency/Doubleday, 1997).
9. M. A. Peteraf, “The Cornerstones of Competitive Advantage: A Resource-based View,” *Strategic Management Journal* 14 (1993), pp. 179–91.
10. Edvinsson and Sullivan, “Developing a Model for Managing Intellectual Capital,” p. 356; H. Saint-Onge, “Tacit Knowledge: The Key to the Strategic Alignment of Intellectual Capital,” *Strategy and Leadership* 2 (March–April 1996), p. 1014.
11. Edvinsson and Sullivan, “Developing a Model for Managing Intellectual Capital,” p. 356.
12. R. Hall, “A Framework Linking Intangible Resources and Capabilities to Sustainable Competitive Advantage,” *Strategic Management Journal* 14 (1993), pp. 607–18.
13. C. K. Prahalad and G. Hamel, “The Core Competencies of the Corporation,” *Harvard Business Review*, May–June 1990, pp. 79–91.

14. Hall, “A Framework,” pp. 607–18.
15. In Edvinsson and Sullivan’s (1996) and Saint-Onge’s (1996) taxonomy, structural capital includes both organizational capital and human capital.
16. Saint-Onge, “Tacit Knowledge,” p. 1014.
17. B. Uttal and J. Fierman, “The Corporate Culture Vultures,” *Fortune*, October 17, 1983; J. Barney, “Organizational Culture: Can It Be a Source of Sustained Competitive Advantage?” *Academy of Management Review* 11 (1986), pp. 656–65.
18. This draws on A. N. Afuah, *Innovation Management, Strategies, Implementation, and Profits* (New York: Oxford University Press, 1998), chap. 12.
19. *Ibid.*, chap. 10.
20. The type of financing that is best for a firm and how the firm should go about obtaining that financing are very important topics in corporate finance. See, for example, Brealey and Myers, *Principles of Corporate Finance*.
21. A. Taylor III, and J. E. Davis, “Iacocca’s Minivan: How Chrysler Succeeded in Creating the Most Profitable Products of the Decade,” *Fortune*, May 30, 1994, pp. 56–63.