Chapter 23
The Mechanics of Raising Equity Capital

23-1. Private companies can raise equity capital from angel investors, venture capitalists, institutional investors, or corporate investors.

23-2. Advantages of raising money from a corporate investor are that the large corporate partner may provide benefits such as capital, expertise, or access to distribution channels. The corporate partner may become an important customer or supplier for the startup firm, and the willingness of an established company to invest may be an important endorsement of the new company.

The disadvantages are that not all corporate investments are successful. The corporate partner may gain access to proprietary technology, or eventually even become a competitor. Once a young firm has aligned itself with one corporate partner, the competitors of this partner may be unwilling to do business.

23-3.  
   a. After the funding round, the founder’s 8 million shares will represent 80% ownership of the firm. To solve for the new total number of shares (TOTAL):

   \[ 8,000,000 = 0.80 \times \text{TOTAL} \]

   So \( \text{TOTAL} = 10,000,000 \) shares. If the new total is 10 million shares, and the venture capitalist will end up with 20%, then the venture capitalist must buy 2 million shares. Given the investment of $1 million for 2 million shares, the implied price per share is $0.50.

   b. After this investment, there will be 10 million shares outstanding, with a price of $0.50 per share, so the post-money valuation is $5 million.

23-4.  
   a. Before the Series D funding round, there are \((5,000,000 + 1,000,000 + 500,000 = 6,500,000)\) shares outstanding. Given a Series D funding price of $4.00 per share, the pre-money valuation is \((6,500,000) \times 4.00/\text{share} = 26,000,000\) million.

   b. After the funding round, there will be \((6,500,000 + 500,000 = 7,000,000)\) shares outstanding, so the post-money valuation is \((7,000,000) \times 4.00/\text{share} = 28,000,000\).

   c. You will own \(5,000,000 / 7,000,000 = 71.4\%\) of the firm after the last funding round.

23-5. The two main advantages of going public are liquidity and access to capital. One of the major disadvantages of an IPO is that once a company becomes a public company, it must satisfy all of the requirements of being a public company such as SEC filings, and listing requirements of the securities exchanges.
23-6. Underwriters face the most risk from a firm commitment IPO. With this method, they guarantee that they will sell all of the stock at the offer price. If the entire issue does not sell at the IPO price, the remaining shares must be sold at a lower price and the underwriter must take the loss.

With a best-efforts IPO, the underwriter does not guarantee that the stock will be sold, but instead tries to sell the stock for the best possible price. In an auction IPO, the underwriters let the market determine the price by auctioning off the company.

23-7. First, compute the cumulative total number of shares demanded at or above any given price:

<table>
<thead>
<tr>
<th>Price</th>
<th>Cumulative Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00</td>
<td>100,000</td>
</tr>
<tr>
<td>13.80</td>
<td>300,000</td>
</tr>
<tr>
<td>13.60</td>
<td>800,000</td>
</tr>
<tr>
<td>13.40</td>
<td>1,800,000</td>
</tr>
<tr>
<td>13.20</td>
<td>3,000,000</td>
</tr>
<tr>
<td>13.00</td>
<td>3,800,000</td>
</tr>
<tr>
<td>12.80</td>
<td>4,200,000</td>
</tr>
</tbody>
</table>

The winning price should be $13.40, because investors have placed orders for a total of 1.8 million shares at a price of $13.40 or higher.

23-8. a. With a P/E ratio of 20.0x, and 2005 earnings of $7.5 million, the total value of the firm at the IPO should be:

\[
\frac{P}{7.5} = 20.0x \Rightarrow P = $150\text{ million}
\]

There are currently \((500,000 + 1,000,000 + 2,000,000) = 3,500,000\) shares outstanding (before the IPO). At the IPO, the firm will issue an additional 6.5 million shares, so there will be 10 million shares outstanding immediately after the IPO. With a total market value of $150 million, each share should be worth \(\frac{150}{10} = $15\) per share.

b. After the IPO, you will own 500,000 of the 10 million shares outstanding, or 5% of the firm.

23-9. Underpricing refers to the fact that, on average, underwriters pick the IPO issue price so that the average first-day return is positive. If you followed a strategy of placing an order for a fixed number of shares on every IPO, your order will be completely filled when the stock price goes down, but you will be rationed when it goes up. In effect you only get substantial amounts of stock when you do not want it. The winners’ curse is substantial enough so that the strategy of investing in every IPO does not yield above market returns.

23-10. The initial return on Margoles Publishing stock is \((19.00 - 14.00) / (14.00) = 35.7\%\).

Who gains from the price increase? Investors who were able to buy at the IPO price of $14/share see an immediate return of 35.7% on their investment. Owners of the other shares outstanding that were not sold as part of the IPO see the value of their shares increase. To the extent that the investors who were able to obtain shares in the IPO have other relationships with the investment banks, the investment banks may benefit indirectly from the deal through their future business with these customers.

Who loses from the price increase? The company lost, because it sold stock for $14.00 per share when the market was willing to pay $19.00 per share. The underwriters also lose, because their spread is based on the offer price. A higher offer price translates to a higher spread (other things equal).
23-11. Cyclicality by itself is not particularly surprising. One would expect that there would be more need for capital in times with more growth opportunities than in times with fewer growth opportunities. What is surprising is the magnitude of the swings. It is very hard to believe that the availability of growth opportunities and the need for capital changed so drastically between 2000 and 2001 to cause a decline of 48% in the dollar volume of new issues. It seems that the number of IPOs is not solely driven by the demand for capital. There are times when firms seem to favor doing an IPO to raise capital, while at other times they appear to rely on other means.

23-12. The total dollar value of the IPO was ($18.50) × (4 million) = $74 million. The spread equaled (0.07) × ($74 million) or $5.18 million.

23-13. a. The company sold 5 million shares at $42.50 per share, so it raised ($42.50) × (5,000,000) = $212.5 million.
   b. The venture capitalists raised ($42.50) × (3,000,000) = $127.5 million. So, in total, the SEO was worth $212.5 + $127.5 = ($42.50) × (8,000,000) = $340 million.

23-14. A cash offer is when a company offers the new shares to investors at large. A rights offer is when the new shares are offered only to existing shareholders. Rights offers protect existing shareholders from underpricing. However, with a rights offer, only existing shareholders are offered stock to purchase. Demand may be lower, because existing shareholders are only a subset of all possible investors, and because they may not want to increase the percentage weight of this stock in their portfolios. If demand is lower, firms may receive a lower price from rights offers.

23-15. Investors will receive a total of 10 million rights. Since it takes ten rights to purchase one share, they will be able to purchase 1 million shares. At a price of $40/share, the company will be able to raise ($40/share) × (1 million shares) = $40 million in this offering.